

**THE  
RAILWAY GAZETTE**

A Journal of Management, Engineering and Operation  
INCORPORATING

Railway Engineer • TRANSPORT • The Railway News

The Railway Times • Herapath's Railway Journal • RAILWAY RECORD.

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## DIESEL RAILWAY TRACTION SUPPLEMENT

*The November issue of THE RAILWAY GAZETTE Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price 1s.*

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## DISPATCH OF "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders No. 1190 of 1940

## A Sense of Proportion

WHEN a Londoner visits the provinces at the present time he is often given cause for astonishment at the ideas of destruction in the Metropolis which are expressed to him for confirmation or elaboration. Conversely, those whom he meets sometimes seem amazed that he should be merely on a visit and contemplate return with perfect equanimity. Amid unusual disturbances a sense of proportion is not easy to retain, and, although London is not what it was, and the transport system suffers some disorganisation, the rapidity of essential repairs prevents anything approaching complete breakdown in the business life of the city. The case of a business man who travels 20 miles by train each way daily between his home and office, and has done so without a single interruption ever since the intensive air raids began, though of course not always without some delay and overcrowding, can be multiplied by the hundred thousand. Though some traffic delay and congestion have been caused by the bombing of London, the effect does not extend unduly far, and there are wide areas of the country where trains continue to run normally. How small an effect, outside London and a very few industrial towns, the depredations of the air raiders have had, was brought home to us the other day when we were shown a list of the damage suffered during the past six weeks over a certain widespread area, both industrial and rural, and learned of the slight air raid damage to railway property and the almost negligible effects on the running of trains therein.

\* \* \* \*

## Ministry of Transport and the Press

The new Minister of Transport has made one welcome innovation at the Ministry already. Within a few days of taking office he met representatives of the press and expressed his intention of holding frequent conferences with them in order to keep them abreast of developments and to obtain the benefit of a mutual exchange of views. He also said that it was his intention to meet representatives of the weekly and technical press to discuss matters of concern to them which would not appeal so greatly to the lay daily newspapers. Lt.-Colonel J. T. C. Moore-Brabazon followed up his avowal speedily, for during the afternoon of the day on which he had announced his decision to implement the recommendations of the Charges (Railway Control) Consultative Committee as to higher charges, he held a press conference and explained the machinery under which this step was necessary. At the present time when the railways are controlled by the Minister, and are therefore in a somewhat difficult position as to publicity, it is all the more essential that a progressive policy in this direction should be pursued by the Ministry. In the past the position has been far from satisfactory, and comment on it has previously been made in THE RAILWAY GAZETTE. It does not follow, of course, that the mere holding of press conferences will overcome the disabilities from which the railway companies suffer in this connection, but at least regular meetings between the Minister and responsible representatives of the press should go far to clear up misunderstandings which have been all too frequent in the past.

\* \* \* \*

## Need for Preparation

It is not sufficient for the Minister to attend these conferences with a few of his permanent officials and to rely on the give and take of question and answer to throw up a successful conference. That may be good enough on occasions when the subject matter is controversial or of considerable immediate moment. Those who attend the conference on the department's side of the table must be prepared to clear up misconceptions which are noted to be growing up from day to day and to do so before they obtain firm roots. In a great many departments in and around Whitehall far greater attention has been devoted to successful contact with the press than would appear to be the case at the Ministry of Transport, and the results obtained have amply justified the pains taken. It is not suggested that daily conference should be instituted on the lines of those conducted by certain of the senior departments, but rather that great care

should be taken to see that those who are responsible for routine contacts with the press are fully primed with developments and with the limits of what may be made public. Further, there is scope for far greater care in the phrasing of semi-technical matters in dealing with members of the lay press. The popular misconception that the proposals for higher charges emanate from the railway companies, whereas in fact they have their origin in the Railway Executive Committee as the agent of the Minister, is a case in point and one to which we have already directed attention. Loose phrases in conversation with the press have a habit of being reported without the careful checking which might overcome the possibility of creating false impressions.

\* \* \*

### Overseas Railway Traffic

A slight recovery in traffic during the 15th and 16th weeks of the current financial year is shown by the Argentine North Eastern to the extent of 24,400 pesos and by the Entre Rios to the extent of 3,400 pesos net. The Buenos Ayres Western receipts for the 16th week are only 6,000 pesos down following a decrease of 19,000 for the previous week, these contrasting with decreases of 142,000 pesos and of 52,000 pesos, respectively, for the 13th and 14th weeks. On the Central Argentine the rate of decrease continues to be considerably lower than the fall of 469,450 pesos recorded in the 13th week.

	No. of Week	Weekly Traffic	Inc. or Decrease	Aggregate Traffic	Increase or Decrease
Buenos Ayres & Pacific*	16th	1,115	30	17,924	1,694
Buenos Ayres Great Southern*	16th	1,867	264	29,694	1,034
Buenos Ayres Western*	16th	676	6	9,993	1,120
Central Argentine*	16th	1,340	206	22,362	9,046
		£	£	£	£
Canadian Pacific	42nd	782,600	+ 66,000	26,551,000	+ 3,132,800
Bombay, Baroda & Central India	28th	246,075	+ 23,400	5,274,150	+ 587,475

\* Traffic returns in thousands of pesos.

On the Central Uruguay the aggregate receipts for the 16 weeks of the financial year amount to £290,634, an increase of £20,655 in sterling, but a decrease of \$287,448 in Uruguayan currency.

\* \* \*

### Destroyed Bridges and Ferries

The large numbers of railway and other important bridges which have been destroyed in Europe since the outbreak of war make pertinent the question as to whether there will not be a boom in train ferries during the reconstruction period; for although a "lash-up" may serve its purpose for purely military work, the normal rail communications of Europe demand the best bridge work. It must be remembered that the original idea of a train ferry was to carry the railway over a river while the bridge was being constructed. The North British Railway Company's *Leviathan* of 1849 ran from Granton to Burntisland. In South America there are many train ferries across rivers, while every seafarer who has entered the Port of New York knows the enormous number of car floats which are always working backwards and forwards across the Hudson River, with tugs lashed alongside. In these cases, however, the railways come down to the water's edge at a low level. Most of the big bridges on the Continental railways run across the rivers at a considerable height. Commenting on the position, however, our associated contemporary, *Shipbuilding & Shipping Record*, says that there is no particular difficulty about the height of such bridges, and recalls that British shipbuilders constructed the train ferry *Leonard* just before the last war with a rail deck which could be raised and lowered according to the tide, and which was specially designed for the St. Lawrence after the bridge there had collapsed for a second time.

\* \* \*

### Interior Lighting in Factories

It is well known that marked increases in production, as well as a reduced risk of accident and overstrain, have resulted from improvements in the lighting arrangements in works and factories. There has been a very widespread improvement in factory lighting in recent years, but it cannot be gainsaid that there remain some works in which lighting is still unsatisfactory, either in amount or in the method of shading. There are cases, too, in which improvement can be

made in blackout arrangements so as to provide for the admission of more natural light during the day. Factors such as these have been considered by the Minister of Labour & National Service, who, after receiving an unanimous report from the Departmental Committee on Lighting in Factories, has drawn up draft regulations under the Factories Act, 1937. At present it is proposed to apply the regulations to factories in which persons are regularly employed for more than 48 working hours a week or in shifts. This is because, broadly, this category will cover factories where work of special national importance is being done at high pressure and where the work is carried on to an exceptional extent by artificial light. In present circumstances lighting improvements may raise questions of priority of supplies and it is therefore necessary to deal first with places where improvement is most necessary. The regulations call for at least 6 foot-candles of lighting in parts where persons are regularly employed and for half a foot-candle in other parts. The 6 foot-candle standard is based on what is now usually accepted as good illumination, enabling ordinary work to be done with ease and affording reasonable amenity to the workers affected.

\* \* \*

### "Coach-Sleepers" in the U.S.A.

In the May 31 issue of THE RAILWAY GAZETTE illustrations and full particulars were given of some Pullman conversions in the U.S.A., whereby the privilege of sleeping accommodation in three-tier berths, convertible into extremely comfortable day accommodation, is being extended for the first time to the American coach passenger, corresponding to the third class traveller in this country. Some interesting particulars are now available of the public response to this somewhat revolutionary development in U.S.A. travel amenities. On the first 13 runs of the cars, which ran between Chicago and Seattle on the Burlington-Northern Pacific North Coast Limited and the Burlington-Great Northern Empire Builder, 496 passengers were carried, an average of 38 per trip out of the 45 places in each car being thus occupied. A questionnaire circulated among the patrons showed that only 10 per cent. of them had forsaken normal Pullman sleeping accommodation for this cheaper facility; 9½ per cent. had been attracted from the motorcoach routes and 7 per cent. from private automobile travel—a definite gain to the railways—while 38 per cent. would otherwise have booked at third class or "coach" rates and 33½ per cent. in tourist sleepers. Of these passengers, 75 per cent. were on holiday and 16½ per cent. were making business journeys. The supplement charged for the entire journey—2,196 miles by the Great Northern and 2,335 miles by the Northern Pacific route—has only been \$5 additional to the coach fare of \$39.50, and has covered three nights' use of the sleeping accommodation, at a cost which at the nominal rate of exchange works out less than 1½d. a mile.

\* \* \*

### Closing the Van Railway

The Great Western Railway has recently given notice of its intention to close the Van Railway in Mid Wales, and this presumably will bring an end to the long and interesting career of this somewhat remote line. The Van Railway is one of the very few undertakings worked by authority of a Board of Trade Certificate issued under the Railway Construction Facilities Act of 1864. The certificate was dated May 22, 1873, and these powers covered a standard-gauge line from a junction near Caersws on the Cambrian Railways for 6½ miles to the famous silver and lead mines at Van. The railway had already been opened for merchandise traffic on August 14, 1871, and the Board of Trade Certificate was therefore in the nature of a legalisation for public traffic of an existing undertaking. Passengers began to be conveyed on December 1, 1873, but this traffic was discontinued in 1879. The line was entirely closed in 1892, but arrangements were eventually made whereby the railway was to be maintained and worked by the Cambrian Railways Company under an agreement of July 29, 1896, made by virtue of Section 24 of the original Board of Trade Certificate. Under this arrangement the line was re-opened by the Cambrian Railways on August 1, 1896. At grouping the Cambrian was amalga-

dated with the G.W.R. as from the beginning of 1922, and the Van Railway was absorbed into the G.W.R. as from January 1, 1923.

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### Swedish Signalling Development

Sweden was among the European countries which early came under German technical influence, but during the last twenty years, under the able administration of Mr. T. Hård, Signal Engineer of the Swedish State Railways, an independent course has been pursued, which in many respects broke away from German standards, and combined the results of the best experience of all countries. The article we publish in this issue gives of necessity only a bare outline of Swedish signalling developments in the past couple of decades, but is perhaps sufficient to indicate what has been accomplished. Among the interesting features to be found in modern Swedish signalling are the retention of red, green and white lights, to the almost complete exclusion of yellow, which is used only for "flag station" stops; the use of flashing lights in certain aspects; the signalling of all movements inside station limits by position-light dwarf signals, cleared to the third position for running trains; both-way signalling on double lines; and the wide adoption of electric power apparatus. Nor has the improvement of the mechanical signalling been neglected, and everywhere well-constructed equipment is to be seen.

\* \* \*

### Telephone Communication between Driver and Guard

Tests have recently been carried out by the G.W.R. of a telephone installation which enables spoken communication to be maintained between driver and guard at all speeds and under the most adverse conditions of noise and vibration. The apparatus consists of three heavy-duty, metal-clad Loudaphones, manufactured by a firm which has specialised in the production of such equipment for essential services, chiefly at sea. The attention of the person called is attracted by the combination of a luminous indicator and a low-volume, high-frequency buzzer, and these units are housed in each telephone. The distinctive note of the buzzer is described as being penetrative without being startling. An important feature of the equipment is that extraneous noises are excluded by the use of scientifically-damped microphones, and reproduced speech is clear and powerful. The Loudaphone apparatus is portable and is easily adapted for installation on any train when the necessity for communication between driver and guard arises. This experiment, for brief particulars of which we are indebted to the *G.W.R. Magazine*, represents the first of its type in Great Britain. Radio communication between driver and guard has been used abroad, notably in Scandinavia, Germany, and the U.S.A., and such installations have been described and illustrated in our columns from time to time.

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### The Railway "Grouser"

The railway "grouser" has probably never in all his experience had so many opportunities as at present to make his complaining voice heard. Some, at least, of these opportunities are self made, partly imaginary, and more often than not based on ignorance of railway working, especially in the difficult times through which we are now passing. It is, of course, not pleasant to find that the erstwhile fast train by which one has travelled to his business for years has been converted into a stopping train with an added margin of time allowed it, and perhaps a change *en route*; nor is it to be expected that the regular traveller should take kindly to being consistently late on the homeward journey so that his evening leisure is considerably curtailed leaving only just about time to "hear the news, and so to bed." He must, however, bear in mind that it is just as much to the disadvantage of the railway and its personnel that the train service should be disorganised and that many adjustments have to be made in the workings, often at short notice, to meet the circumstances. It is, alas, "la guerre" or should we say "der blitzkrieg" that is responsible and the railways themselves are just as much the victims as their passengers.

### Railway Charges and the Financial Agreement

THE long awaited decision of the Minister of Transport on the proposals of the Railway Executive Committee for adjustment of railway charges to meet the increased costs as a result of the war has in the main had a more favourable reception than its predecessor. The chief points of that decision were given in *THE RAILWAY GAZETTE* last week when it was shown that as from December 1 fares and charges were to be raised by approximately 6 per cent. with certain important exceptions, namely, workmen's fares, season tickets, and ordinary fares on services of the London Passenger Transport Board, except coaches. At first sight the increase ordered would appear to be substantially less in value than that which the Railway Executive Committee proposed and explained at the public sitting of the Charges (Railway Control) Consultative Committee. This was for an all-round advance of 6.8 per cent. in charges, to operate on October 1. The effect of that advance would have been to have raised the general level of railway charges—now including the 10 per cent. increase which came into operation last May—to a point  $17\frac{1}{2}$  per cent. above that ruling when the railways passed under Government control immediately before the outbreak of war. The advances now sanctioned will make the level of  $16\frac{3}{4}$  per cent. above pre-war. The immediate reaction in the press to the Minister's announcement was more favourable than that which greeted the 10 per cent. increase, or indeed than might have been expected in view of the opposition to higher charges which was displayed during the time the Railway Executive Committee's proposals were being considered by the consultative committee and the Minister. That is because of the exceptions which have been made to the general advances in charges; in effect the great majority of workmen and others who regularly use the railways for business purposes are not touched by the advances in the transport costs.

The bulk of travellers in London also escape. Generally it is true to say that members of the business community of the metropolis will not be affected by the new level of charges, except in so far as they use the transport for other than regular purposes. Since the London traveller has had to bear a good deal of inconvenience in his travel arrangements in recent weeks, and is in a position to be vocal in his opposition to calls upon his pocket for travelling facilities, it is not impossible that the concessions which have been made to him have a political significance. In any event the fact remains that certain of the daily newspapers which were most strenuous in their opposition to further general increases in charges showed unexpected complacency when the Minister's decision was made known. *The Daily Mail*, commenting on the announcement says: "The rise in railway fares is unpleasant . . . but this further charge cannot in fairness be denied to the railways whose additional costs already amount to £46,000,000, and if they are not discharged by higher fares they must be met by the taxpayer . . . The railways must be carried on. Without them the life of the country would be brought almost to a standstill." Similarly the *Daily Herald* says: "These are important concessions. They will soften the blow of the latest increases in charges just where it would have caused most hurt." *The Times* also expresses the view that while there is little comfort in the fractional lessening of the expected addition "there is welcome consideration for regular travellers."

At a press conference held by the Minister to explain the need for the increase in fares, Lt.-Colonel J. T. C. Moore-Brabazon was at some pains to make clear important aspects of the Government's financial arrangements with the railway companies. He emphasised that the view held at the Ministry was that the railways should be run as a healthy self-supporting entity, and declared that, whether it was the wisdom of Parliament that they should be nationalised after the conclusion of the war or should be put back into private hands, it was essential that at that time the railways should be in a sound financial state. He created the impression that, whatever might happen to the financial agreement between the Government and the railways, it was a considered view of the Government that there should be a proper adjustment between costs and charges for the duration of the war, and by inference he rejected suggestions that the need

to raise railway charges should be overcome by granting the companies a State subsidy. Colonel Moore-Brabazon, also stated that the agreement with the railways is now in the melting pot having regard to the new plans for air raid compensation. He explained at some length that, in view of the recent announcement by the Chancellor of the Exchequer and the Prime Minister that war damage was to be a national charge, the provision in the financial agreement under which the railways were to be permitted to charge as working expenditure war damage up to a maximum of £10,000,000 in one year could no longer be operative. That clause, he said, was fundamental to the whole agreement and it was therefore necessary for the parties to reconsider it in the light of changed conditions. He did not give any indication, of course, as to the lines upon which negotiations were proceeding nor whether they were confined to the question of war damage. Moreover, he could not be induced to drop any hint as to whether the abandonment of this clause was to be construed as a "clause of major character" which would result in a proposal for the revision of the agreement as a whole from the end of this year. If, in fact, it were decided to make a very substantial revision in the terms of the agreement there would not appear to be any good cause why certain of the provisions should not be maintained.

The minimum revenue guaranteed to the companies—£40,000,000 a year—has not been authoritatively assailed as being unduly generous. The next stage, during which the companies may retain in full a further £3,500,000 a year if they can earn it, merely puts into operation the Government's declared principle that the railways must have an incentive to efficient and economic working. From that point up to the realisation by the companies of their respective Standard Revenues they are, under the present agreement, to share equally with the Government, and thereafter the Government is to take the whole of any revenues earned. In present circumstances, the provisions relating to revenues in excess of £43,500,000 a year are perhaps too hypothetical to require detailed comment. It would seem likely, in view of the need to negotiate what is evidently a major point in the financial relationships between the Government and the railways, that the publication of the full terms of the agreement will once more be delayed for some time. Damage from enemy action to the property of railway companies cannot be placed in the same category as damage to ordinary commercial or industrial undertakings because of the over-riding national need for a speedy restoration of transport services. It must often happen, therefore, that railway companies must make repairs far more expeditiously, and therefore at a greater cost, than might an industrial concern whose obligations to the nation are not so great. Further, the Government plans for compensation for war damage are still nebulous, and until they take definite shape it is impossible to conjecture what the effects might be upon either railways or other industrial undertakings. Nor is it known whether a concern which suffers from enemy action will be able to hope for full or only part compensation. Another point which will have to be decided is whether the premium to be paid by the railway companies for war damage insurance will be chargeable as a cost arising from the war and thus rank for inclusion with other costs in the computation of higher charges.

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### Operating Problems in Air Raids

**R**AILWAY travellers, particularly those who use the London suburban lines regularly for getting to and from their daily work, have been surprised at the comparatively small interference with train services which the recent intensified air raids have caused. When the raids began no one would have been surprised had it proved impossible for the great majority of suburban dwellers to carry on their normal occupations day by day, yet such was the energy with which the engineers took in hand the restoration of damaged lines, and such was the adaptability of the traffic departments in using alternative routes, that few regular travellers have suffered more than minor inconvenience, to their surprise and gratification. There have, of

course, been delays, though as a rule these have not been great, and there has been here and there overcrowding of trains. Sometimes passengers have been deposited at unaccustomed stations in London, but the co-operation of London Transport has enabled them to find their way to their ordinary destinations without much difficulty.

In our October 18 issue we gave some idea of what the engineers have had to cope with, and of their ingenuity in maintaining the lines in air raids. What of the traffic departments, and the problems they have had to solve each morning, after the depredations of the night's air raids? To take one example, namely, that of the Southern Railway, whose extensive suburban system has been the nearest target for the enemy: the blocking of lines and breakage of telephone wires by bombing was expected, and immediately on the outbreak of war a pre-arranged control system was established with numerous sub-controls to decentralise the regulation of the traffic, and offset, as far as possible, the temporary loss of the longer distance telephone lines. Still further to counteract the temporary severance of the telephone wires, a corps of motor cycle dispatch riders was also brought into being and has done invaluable work. Throughout the 24 hours reports are collected and collated at the various control centres, and extemporised services arranged to cover sections of line that may have been temporarily blocked. The arrangement of these services and the work of clearing the lines is treated with priority, and a continuous endeavour is made to restore normal conditions with the utmost possible despatch, and meanwhile to give the public the best alternative services that can be devised. The Southern is fortunate in the multiplicity of its alternative routes and London terminal stations, and if one line is blocked another can usually be made to carry an emergency service. It has meant, of course, in many instances the withdrawal of some trains and the overloading of others, but passengers have been got to their destinations, sometimes with little or no delay. Road services are also arranged whenever necessary. Authority is delegated to stationmasters, so that, in the event of communication being cut, what train service can be devised with the rolling stock available may be put on to fill the gap until the co-ordinated arrangements of divisional headquarters can be established. Throughout the 24 hours the position is changing, and since most of the damage has been done at nights, it is changing for the better during the daytime, so that often by the time of the evening rush-hour many services which could not be run in the morning have been re-established.

It is not to be supposed that there have not been complaints by passengers, but these are generally based on misconceptions, and where apparently absurd situations arise it is not necessarily without good reason. It has sometimes been the experience of passengers that the shout has gone along the platform for all to change, and having descended from the train, they have been advised that, after all, it would proceed, and they could get back into it; but the reason—which must, as a rule, be a mystery to the passengers—has usually been the good one that in the brief interval a message has come through that the obstruction on the line ahead has been made good, and they really are the fortunate ones who are the first passengers to be able to use the hitherto interrupted service. A noticeable feature of railway operation under the present difficult conditions is the enthusiasm of the staff to keep the trains working, or to re-establish the services when they have been stopped. They have been encouraged to display initiative, and all cramping restrictions have been removed, the paramount consideration being the most rapid restoration of normal conditions.

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#### MASTERLITE RECHARGEABLE LAMP

Runbaken Electrical Products, of Manchester, has produced a new rechargeable lamp (200/250 volts a.c.) called the Masterlite which may be recharged from any socket by simply plugging in. A built-in unit charges a dry accumulator which can be recharged indefinitely. No separate charger is required and the need for battery renewals is eliminated. It has a detachable A.R.P. mask and can be hung on belt or button, or it will stand. The retail price is 39s. 6d.

## THE SCRAP HEAP

Mr. A. F. Eiglaar of "Bergprofiel," The Highway, Sunny Cove, Fish Hoek, South Africa, writes:—

In your issue of August 2 I was interested to read in "The Scrap Heap" the reference to the 450,000,000 farthings minted (ten a head for every man, woman and child in the country) and where do they all go.

Perhaps there are other folk who, like me, use them as counters for "farthing nap"! A few years ago I obtained 200 solely for that purpose.

### SCHOOL IN A STATION

Some new records have been established at Keswick by the temporary acquisition of a large proportion of the station offices to serve as school classrooms. The well-known Roedean School for girls has evacuated from the South Coast to the Keswick Hotel, which adjoins the station, and the office buildings on the down side, which were once the headquarters of the Cocker-mouth, Keswick & Penrith Railway, have now been pressed into service for scholastic purposes, including some of the waiting rooms. In such surroundings a study of *Bradshaw* might form an entirely appropriate part of the curriculum.

### THE N.U.R. ON THE WARPATH

In the current issue of *The Railway Review*, the organ of the National Union of Railwaymen, Mr. J. Marchbank, the General Secretary, makes a plea for "heavy, merciless, incessant, and destructive" counter-strokes against Germany. "What moral difference is there," he asks, "between our use of sea power to maintain a hunger blockade and our use of air power to stun Berlin with the heaviest loads of high-explosive bombs our airmen can carry? If frightfulness is the Nazi argument, why should we not use it to convince the German people that their rulers deceive them with the promise of early and easy victory?" Mr. Marchbank suggests that to refrain from inflicting maximum destruction on German cities is "sheer weakness and imbecility. We should answer Hitler's destructive violence in kind and degree—bomb for bomb, blow for blow, by night and day," he argues. "Let us make them understand, in their streets, their homes, their shops and factories, their schools, hospitals and shelters, what the new tactics of air warfare their rulers are employing against us really mean."

A certain stationmaster reported to the local military authorities that enemy aircraft were dropping a substance like cobwebs or silken thread in his vicinity. The authorities promptly issued a warning that the substance must not be touched in any circumstances. The divisional traffic manager asked headquarters for confirmation of

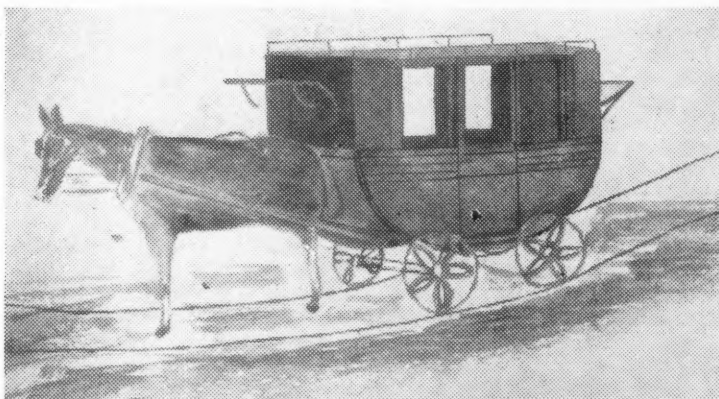
this instruction, and how the substance was to be dealt with. Later it was established that the cobwebs were quite harmless, Professor Gilbert Murray having stated that spiders were migrating in large numbers, and the webs reported to the military authorities were due to this.

The employees of the L.N.E.R. are being encouraged to cultivate waste land by the lineside. During recent years there has been a steady decline in applications for allotments owing to the provision of more garden land under modern housing schemes, but, as a result of the recent "grow more food" appeal by the Minister of Agriculture, 1,100 additional plots have been put

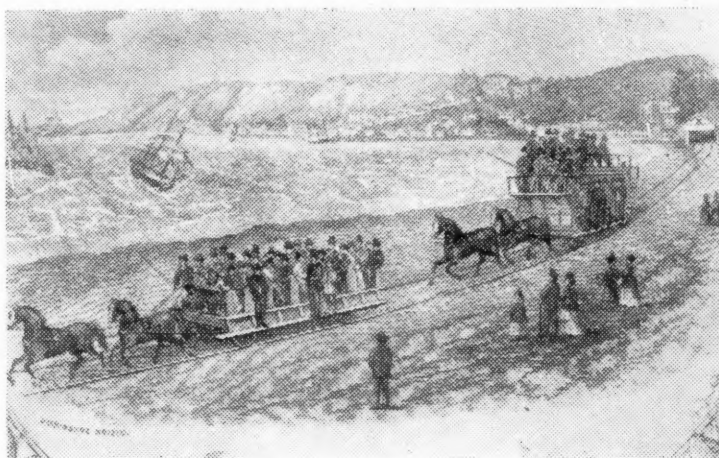
under intensive cultivation and added to the large acreage of lineside land already developed. Since the outbreak of war, crops of essential foodstuffs such as potatoes and green vegetables have been predominant, and little space is used for luxury produce. Railwaymen take gardening seriously and, despite the dry season, exceptional crops have been grown.

### IN THE MALE VAN

Postmen meeting the London night parcels express at Central station, Manchester, found unexpected males sleeping in the mail van. They were 20 soldiers and sailors who had missed the last passenger train from London, and, so that they would not lose precious hours of their leave, the L.M.S.R. had put them into the mail train.—*From the "Evening News."*



Sketch of a coach used on the Oystermouth Railway, painted by J. Ashford, 1819



Two different types of horse-drawn passenger vehicle used on the Swansea & Mumbles Railway in the early 70's. The original engraving was issued by "John Rees, Family Grocer and Draper, Mumbles."

Two illustrations from the collection in the Royal Institution of South Wales, Swansea, which were used by the "South Wales Evening Post" to accompany a reproduction of Mr. Kenneth Brown's article from *THE RAILWAY GAZETTE* of July 5 last, entitled "The First Railway Journey in Literature"

## OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

### INDIA

#### Railway Court of Inquiry

It is understood that the Government of India has appointed a Court of Inquiry to investigate the question of cost of living of the employees of the State Railways. Sir B. N. Rao, a judge of the Calcutta High Court, has been selected to preside. He was recently summoned to Simla to draw up the preliminary procedure of the investigation. The initial inquiry will be restricted to the Great Indian Peninsula Railway, but such principles as the Government may accept may be found useful for adoption on other railways.

#### New Works in Calcutta

Mr. B. M. Staig, Financial Commissioner of Railways, and Mr. J. H. F. Raper, Member, Railway Board, recently visited Calcutta to discuss with the railways whose headquarters are there, certain features of the works programme for 1941-42, and, in particular, the improvement of transport facilities in Calcutta. *Inter alia*, there is a proposal to instal colour-light signalling between Kalighat and the docks to expedite the heavy goods and mineral traffic passing over this bottleneck.

### ARGENTINA

#### Operating Results : 1939-40

An analysis of the working results of all the privately-owned Argentine railways during the financial year ended June 30 last has just been issued by the *Instituto de Estudios Económicos del Transporte*. These statistics, which are provisional estimates, are based on the goods tonnage and receipts for the whole of the financial year 1939-1940, and the partial returns for the ten months, July 1 to April 30, relating to passenger traffic and the other sections of the accounts, as set forth in the appended comparative table.

The railways included are the Central Argentine, B.A.G.S., B.A.P., B.A.W., Entre Rios, Argentine N.E., Santa Fé Provincial, Compañía General, Rosario to Puerto Belgrano, and Central of

Buenos Aires, the combined gross income of which for the year under review is estimated at 386 million pesos, as compared with 404 millions for 1938-39, a decrease of 18 millions, or 4.6 per cent.

#### Expenses and Receipts

Operating costs were also lower, but the proportionate reduction was much less, the figure for 1939-40 being 316 million pesos, as compared with 307 millions in 1938-39, a decline of 9 millions, or 3 per cent. The percentage of the net receipts absorbed by ordinary expenditure has risen from 78.3 per cent. in the previous year to 79.5 per cent. in 1939-40. As a result, this year's net receipts are estimated at 79 million pesos, as compared with 88 millions in 1938-39, a decrease of 9 millions, or 10.3 per cent.

Losses on exchange, which in 1938-39 amounted to 34 million pesos, will, it is calculated, be some 4 millions, or 11.9 per cent., less this year. After deducting exchange losses, the aggregate net profits are estimated at 45 million pesos, a reduction of 4 millions, or 9 per cent., below those for 1938-39.

Although the tonnage of goods carried was approximately the same as last year—34 million tons—receipts from this source declined, partly as the result of lower freights, from 271 million pesos to 260 millions, or 4.2 per cent. The number of passengers carried was 154 millions, while the total receipts under this head amounted to 85 million pesos, both figures being practically the same as last year, the slight difference being 0.5 per cent. on the minus side.

#### Yield on Invested Capital

It is estimated that the net interest on the invested capital of all the privately-owned railways, which last year amounted to 1.45 per cent., will this year be still further reduced to 1.32 per cent. The appended table shows the comparative working results for the two periods. It should be noted that the figures for 1938-39 are provisional, while those for 1939-40 are a forecast. The working expenses include the exchange losses of non-British companies. Exchange losses of the British railways are included under the corresponding separate heading.

Traffic	1938-39 (1)	1939-40 (2)	Increase or Decrease	
			Absolute	Relative
Goods tonnage ... ..	34,308,000	34,000,000	- 308,000	- 0.9
Tons-km. (millions) ... ..	9,448	9,500	+ 52	+ 0.6
Passengers ... ..	154,827,000	154,000,000	- 827,000	- 0.5
Pass-km. (millions) ... ..	3,895	3,850	- 45	- 1.2
Financial results in Argentine pesos :				
Receipts				
Goods ... ..	271,275,000	260,000,000	- 11,275,000	- 4.2
Passenger ... ..	85,026,000	84,600,000	- 426,000	- 0.5
Miscellaneous ... ..	47,893,000	41,000,000	- 6,893,000	- 14.4
Total receipts ... ..	404,194,000	385,600,000	- 18,594,000	- 4.6
Expenses (3) ... ..	316,278,000	306,700,000	- 9,578,000	- 3.0
Net receipts ... ..	87,916,000	78,900,000	- 9,016,000	- 10.3
Exchange losses-(4) ... ..	38,589,000	34,000,000	- 4,589,000	- 11.9
Net profits ... ..	49,327,000	44,900,000	- 4,427,000	- 9.0
Int. on invested capital ... ..	1.45%	1.32%	- 0.13%	- 9.0
Percentage of expenses to receipts ... ..	78.3	79.5	+ 1.2	+ 1.5

(1) Provisional figures. (2) Forecast. (3) Includes exchange losses of non-British companies.

(4) British railways only

### BRAZIL

#### Maricá Railway

A Decree has been signed which rescinds the contract between the Federal Government and the Compagnie Générale des Chemins de Fer and puts an end to a dispute which has lasted seven years between the Federal Government and this railway. The contract declared void was signed on April 7, 1910, and the present Decree provides for the reversion of the railway to the Government without any refund or compensation.

#### Built with Local Capital

The railway was built at the time of the monarchy, and its capital was put up chiefly by local subscribers who were interested in the agricultural development of the area to be served by the line. With the extinction of the monarchy and the advent of the republic, when foreign capital was finding its way to Brazil with the prospect of profitable investment, a society was formed with the object of unifying the Fluminense railway system. The French group in the society then acquired the Maricá Railway with 60 km. of line open for traffic, and changed the name to Compagnie Générale de Chemins de Fer des Etats Unis du Brésil. The unification of the Fluminense railway system never took place, however, as neither the Leopoldina Railway nor the old Viação Fluminense—which today forms part of the Auxiliar line of the Central Railway—was inclined to participate in the scheme. As a result, probably due also to lack of satisfactory returns, the French group allowed the railway to fall into a state of abandon, until, in 1933, disinterested itself completely, it asked the Federal Government to take over the line.

#### Compensation by Government

As indemnification for the sections between Neves and Alcantara, and Maricá and Nilo Peçanha, worked under concession from the State of Rio Government, the Federal Government will pay the sum of 4,932:717\$ (contos of reis) less 278:469\$—corresponding to the difference between receipts and expenditure in the second half of 1933 and the first half of 1934—and also the sum of 7,425:966\$200 to the Government of the State of Rio. A special credit of 12,080:214\$200 is being opened by the Ministry of Transport to meet these payments, though the sum of 7,425:966\$200 due to the State of Rio will be credited to the National Treasury as redemption of the loan of 6,000 contos made to that State in 1930.

During the time the railway has been under the direction of the State an extension has been built from São Pedro de Aldeia to Cabo Frio, and a further extension from Barra de S. João to Lagoa Dourado, where it will join up with the Leopoldina Railway, is under survey.

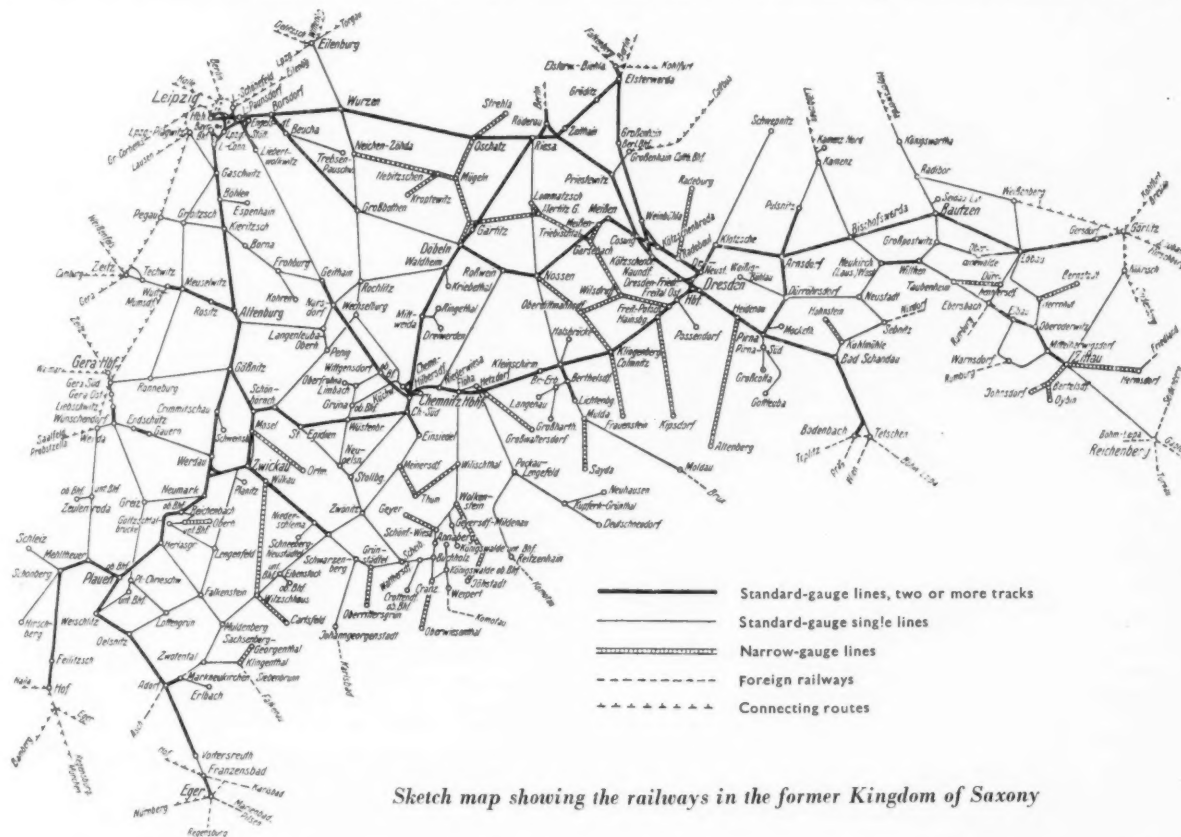
## NARROW-GAUGE LINES OF THE REICHSBAHN

*The former Kingdom of Saxony for some years adopted a policy of building narrow-gauge lines as branch lines and feeders*

THE former Kingdom of Saxony for some years adopted a policy of building narrow-gauge lines as branch lines and feeders.

Out of the 53,840 km. (33,455 miles) of route belonging to the German State Railway (excluding the former Austrian and Sudeten lines) only 1.7 per cent., or 919 km. (571 miles) are narrow gauge. Of this mileage more than half, or 541 km. (336 miles) is in Saxony, under the Dresden divisional management, forming 17 per cent.

in agricultural districts or to make connection with outlying industries of importance. The standard gauge was generally used, but, until 1878, no great progress was made with the construction of such lines, for which the too stringent official requirements concerning details of construction and working have been much blamed. In that year, however, some relaxation was allowed. For example, with a maximum speed of 15 km.p.h. (9.32 m.p.h.) level crossings might be left entirely unguarded,



Sketch map showing the railways in the former Kingdom of Saxony

of the lines under its jurisdiction, which total 2,625 km. (1,631 miles). The next largest figures for narrow-gauge mileage are given by the Stuttgart management, 121 km. (75 miles), Erfurt, 75 km. (47 miles), Oppeln, 63 km. (39 miles) and Ludwigshafen, 60 km. (37 miles). The remainder is spread among five other districts, none having any length of importance. An article in the *Organ für die Fortschritte des Eisenbahnwesens* by Dr. Frohne gives particulars of the origin and development of the Saxon narrow-gauge lines, from which the following notes and map are taken.

### The German "Nebenbahnen"

The building of the so-called *Nebenbahnen*, or secondary railways, in the then German Empire may be said to have been begun after the close of the Franco-German war of 1870-1871, with the object of providing facilities

and with one of 30 km.p.h. (18½ m.p.h.) watchmen were required at specially important crossings only. In addition one daily inspection of the track—against the previously required three—would suffice, and neither fencing nor signals were insisted on as a rule. The brakes might also be of a simpler type than on other lines. In 1878 some 26 sections of *Nebenbahnen* were opened, totalling about 500 km. (311 miles).

### Saxony adopts Narrow Gauge

About this time the Saxon Government, which already possessed a considerable State railway mileage, entered on a policy of light railway construction, to meet the demands of various localities for improved means of transport. Faced with the high cost of standard gauge construction—materially increased by the official minimum curve radius of 180 m. (197 yd.) since regarded as a great

mistake, it was decided to adopt the 750 mm. (2 ft. 5½ in.) gauge, after much argument for and against the plan had been heard. Transshipment difficulties were considered of much less importance than the great reduction in first cost which the narrow gauge was expected to bring. From 1881 to 1893 nineteen narrow-gauge lines were opened in the then Kingdom of Saxony, some of fair importance. In 1897 and 1898 four more were made, after which narrow-gauge construction was mostly confined to small extensions and connecting lines, helping to group certain portions of route into a convenient whole, forming through communication between places of some importance. The last narrow-gauge section was opened in 1921. The full extent of these lines is seen on the accompanying map. Many of them were spurs along the valleys of the Erz mountains, or connecting defiles; in Central Saxony others formed important cross-routes between points on the standard-gauge lines. Up to 1913 construction costs averaged 118,000 Marks per kilometre, compared with 405,000 Marks for the 4-ft. 8½-in. gauge.

All lines carried both passengers and goods, the former traffic increasing very rapidly until it accounted for 51 per cent. of the receipts, against 33 per cent. on the other lines. The goods traffic was mostly bulk raw material such as coal, coke, paper, and clay, to the industries, many of considerable importance, scattered in the Erz valleys, with finished products in return. There were 30 separate narrow-gauge routes in all, the total mileage being, as above stated, 541 km. (336 miles). Curves were generally fairly sharp, 78 per cent. being under 300 m. (328 yd.) radius, with 50 m. (55 yd.), the sharpest on tracks used by passenger vehicles. The steepest grade was 1 in 20. In due course most lines had 35.8-kg. rails, about 71 lb. per yd. Conveyor trucks enabling standard-gauge wagons to be conveyed, were introduced; there were 963 in use in 1938, with 155 locomotives, 578 passenger coaches and 1,625 goods wagons. The passenger stock of post-war design is well appointed, with steam-heating and electric light, holding 51 third class or 35 second class passengers. The largest goods vehicles can carry 15½ tonnes. The Heberlein cord controlled brake was used up to the war, but the Körting air brake was later introduced.

#### Operating Results

In 1913, the last year for which full and separate working figures were available, there were 21 routes in service; 14 needed a grant to pay their way, but, considered together, the narrow-gauge lines cleared a profit of 110,000 Marks. The important Müglitz Valley line, between Heidenau, on the Dresden—Bodenbach (Prague, Vienna) line, and Altenberg had the best operating co-efficient, 69.8 per cent., and the short Kohlmühle—Hohnstein line the worst, 147 per cent. Some lines paid as much as 3¼ per cent. on the capital invested in them. Traffic on some routes had begun to decline, though very slowly for a time, as long ago as 1904, but the critical period dates, of course, from the war, when the working was naturally much affected. It was not until 1935, however, that a serious investigation was made into the financial position of the narrow-gauge lines, when every item of cost and income was worked out in detail, as far as possible, revealing some unexpected results. The difficulties were found to be mainly attributable to working costs having trebled between 1913 and 1935, falling traffic being of less consequence although real. Road motor competition has, of course, made itself felt, especially around the larger centres, and much influenced the inward (chiefly down grade) goods traffic, since the bulk raw material still goes to the factories by rail, but the finished products, being often small mechanical or other light, high value articles, are specially

suited to conveyance by lorry. Locomotive costs are therefore excessive on the down grade runs in many cases. There are also costs due to relatively poor user of stock, which cannot be used on other lines, such costs being disproportionate on the short, isolated narrow-gauge sections.

#### The Future

It is considered that the circumstances of the time, in the early 'eighties, fully justified the adoption of the 2-ft. 5½-in. gauge and that results would not have been better had the standard gauge been chosen, although, in the course of time, the traffic assumed a character, and the rolling stock a size and weight, never originally contemplated. The Reichsbahn authorities were led to study the problem from the point of view of four possibilities:—

- (a) to keep the narrow gauge but otherwise bring the services up to modern standards;
- (b) to close certain sections entirely;
- (c) to abolish passenger services on some sections;
- (d) to convert to the standard gauge.

The first plan would still necessitate transshipment and the use of conveyor stock and would achieve no purpose with any real satisfaction. (There is, of course, no likelihood of new narrow-gauge lines being constructed.)

Up till the outbreak of war no line had been closed entirely, any suggestion to do so invariably arousing strong opposition from some interested party, generally a local industrialist, though it was held that four routes, namely, Reichenbach—Oberheinsdorf, Kohlmühle—Hohnstein, Taubenheim—Dürrendorf, and Mosel—Ortmannsdorf could probably be closed down. The possibility of applying proposal (c) is being looked into for certain routes, as is also (d) of converting the gauge. Costs could be kept down by using sharper curves than were once thought possible, and suitable rolling stock, for standard gauge *Nebenbahnen* using 85-m. (93-yd.) curves is in use already in Germany. Special investigations made since the war showed that very sharp curves are practicable.

Conversion of several sections of the Saxon narrow-gauge light railways seems, therefore, probable. The Müglitz Valley line has been already done, providing an excellent through route between Dresden and the winter sports regions in the heights of the Erz mountains, as described in THE RAILWAY GAZETTE for September 29, 1939, page 434, but this step was hastened by serious damage to the old line resulting from floods.

#### Bogie Truck Tests in America

Discussing the results of some elaborate tests carried out on the Pennsylvania Railroad with a number of different types of bogie trucks of the kind used in high-speed freight service, our American contemporary, *Railway Mechanical Engineer*, devoted some attention to the question of critical speeds. It has been known for a number of years that freight vehicles equipped with coil springs have critical speeds at which they ride worse than at higher or lower speeds, and the fundamental cause of this is resonance. Periodic disturbance is suffered by the vehicle; if the period of the disturbances coincides with that at which the springs naturally oscillate, the conditions for resonance exist, and a large amplitude of oscillation of the springs is built up which gives rise to rough riding. Freight vehicles in motion may be subjected to two pronounced periodic effects, one from the wheels if they are not truly circular and concentric, and the other from the rail joints. The speed at which resonance may occur depends upon the time of natural vibration of the springs, which is determined by their deflection and therefore depends on the load. The critical speed so far as wheel action is concerned is given as about 25 m.p.h. and that from rail joints at between 40 and 50 m.p.h.

# ROAD TRANSPORT SECTION

*This section appears at four-weekly intervals*

## Street Refuge Lighting

IN view of the approach of shorter periods of daylight, the question of street lighting becomes of increasing interest and importance. That a local authority is not bound to light a street refuge during blackout hours was decided by the Court of Appeal on July 30 in the case of *Wodehouse v. Levy and the St. Marylebone Borough Council* which was discussed in our issue of September 6, 1940, at page 247. In a later blackout case on a cognate matter (*Lyus v. Stepney Corporation*) which came on August 19 before Mr. Justice Humphreys in the King's Bench Division, the decision went against the local authority. Plaintiff, a pedestrian, was awarded £190 damages for injuries arising from a collision with a street sandbin which was not visible to him in the blackout. Mr. Justice Humphreys said that the mere fact that a corporation was absolved from its duty of lighting the streets did not absolve it from the duty of taking steps to prevent danger to persons using the highway. It could have been done by putting a big splash of paint or whitewash on the sandbin. In granting a stay of execution pending notice of appeal, he agreed that there would probably be a great many such cases, and it was desirable that there should be a ruling from a higher Court on the question.

## Proposed Loan for B.A. Transport Corporation

ACCORDING to current reports in Argentine financial circles, negotiations are proceeding for the flotation of a loan amounting to \$35,000,000 paper, subscribed from private sources, to assist the Buenos Aires Transport Corporation to take over the remainder of the bus and *colectivo* concerns, in order to complete the city transport co-ordination scheme. Of the sum mentioned, it is stated that \$30,000,000 will be allotted to the expropriation of those privately-owned services, the proprietors of which are demanding cash, the remaining \$5,000,000 being used to purchase a number of other concerns, the owners of which have agreed to accept 25 per cent. in cash and the balance of the purchase price in corporation stock. The entire transaction would be a short term loan, to be repaid out of the proceeds of an issue of debentures to be made during the next three years; the proposal is being studied by the Ministry of Finance. Since the Corporation took over the control of the passenger transport services of the city about 18 months ago, its operation has been the subject of much public criticism, and this has been accentuated by the adverse financial results of the first year's working. The corporation's reply to this criticism is that the deficiencies complained of arise from the fact that the scheme is still far from complete, because of the large number of transport concerns that have not yet accepted affiliation to it, and the only remedy for this state of affairs is to expedite the complete co-ordination of all the remaining services as rapidly as possible. As the difficulties in the way of achieving this end have so far been mainly financial, the successful flotation of the proposed loan should solve the problem.

## Elimination of Buenos Aires Tramways

A PRACTICAL step towards the co-ordination of the Buenos Aires passenger transport services was taken during August, when the gradual elimination of the tramways in the centre of the city began within a zone bounded by Calles Callao, Entre Rios, Belgrano, Paseo Colon, and Santa Fe. This reorganisation will permit of the removal of some 20 km. of lines in the main thoroughfares, where the trams will be replaced by buses and *colectivos*. The scheme, which has been jointly agreed to by the municipality and the control committee of the corporation, provides for the total abolition of the trams throughout the city within a period not to exceed

14 years. The economy in rolling stock which will thereby result will enable the corporation to augment its services where required, and avoid outlay on renewals to rails and vehicles. On August 17, one Anglo-Argentine surface tramway line and one Lacroze line were closed, and the routes of six others changed. On September 7 the second part of the scheme came into force; on its completion 10 of the 86 tramway lines at present in operation will be closed and the routes of 28 others changed.

## The Historic Burma Road

SELDOM has a highway figured more prominently in world politics than the Burma road at the present time. Its reopening to all classes of traffic, and munitions in particular, on October 18, has been the signal for concentrated bombing attacks on Kunming, the capital of the Chinese province of Yunnan, and other points on the road. The recent British closure of the Burma end of the road has not only been of comparatively little strategic importance, due to the natural limitation of traffic by the rainy season during the month of closure—as already pointed out in our issue of July 26 last (page 86)—but it must also have provided a respite from continuous traffic, enabling the Chinese to concentrate masses of labour upon its improvement, defence, and natural protection. Only the bridges are its really vulnerable points, as the formation can quickly be repaired with the labour available, and doubtless spread along its length ready for such emergent action. Also, it may be taken as certain that spare girders and other materials have been collected near bridges to enable rapid repairs to be effected.\* With the use of air landing grounds on the Chinese borders of Indo-China, only 250 to 350 miles from the road, the Japanese are now able to inflict frequent air raids upon it, and damage is bound to be widespread, even if easily repaired, and it is a pity that the railway is not completed and usable as an alternative line of communication. Once materials can be got through from Burma, however, progress upon it should be rapid, despite inevitable bombings. Almost certainly much of the railway formation and hundreds of bridges will by now have been made ready for the permanent way, bridge girders, and other materials, of necessity imported, but even so, the 545 miles of construction to the Burma frontier, in extremely difficult country, cannot be completed for some time to come. The road, therefore, will have to continue to carry all supplies and bear the brunt of the bombing attacks, successfully, it is confidently hoped.

## Dunedin City and Suburban Transport

LOCAL transport in the neighbourhood of Dunedin is one of the many features of New Zealand history to which attention has been drawn recently by the activities of the Court Committee of the Otago Provincial Centennial Council. The Dunedin—Port Chalmers Railways, which began working in 1872, provided the first suburban service, and on October 26, 1876, the Dunedin—Ocean Beach Railway was opened by Hon. James Macandrew as "the first section of the main line to Portobello." The first tramway system for the city and suburbs was begun in July, 1877, by Mr. David Proudfoot, who, acting under an agreement between himself and the City Corporation, personally planned the layout of the system. Construction proceeded rapidly, and the gangs of men employed were so numerous that they were referred to as "the hosts of David." The formal opening of the steam and horse tramways took place on July 6, 1879. The steam trams were far from popular owing to their noise and

\* Latest telegrams report that both the permanent and temporary bridges over the Mekong river have been severely damaged; one at least is a suspension bridge.

smoke, and the upkeep of the stables for the horses used in conjunction with them was very costly. The Council approved the engineer's recommendation to adopt electric traction and on December 16, 1903, Dunedin electric tramway service was officially opened. Power was derived from a steam plant in Cumberland Street until electricity from Waipori became available in April, 1907. Today the route mileage is over 20, and in addition several auxiliary bus services run to more distant residential areas. The growth and development of Dunedin was brought about largely by the extension of transport facilities, and credit is due to those private companies which had the foresight to begin hillside services almost before the areas they were designed to serve were opened up. The famous Roslyn cable service was provided by the Roslyn Tramway Company and opened for passenger traffic on February 24, 1881. The cars began their upward journey in Rattray Street near the Crown Hotel, and

the terminus and power-house were at the junction of the cable and Maori Hill services. The distinction of pioneering electric tramways is also to the credit of this company which ran horse trams from the Junction to Maori Hill until these were replaced by an electric service which carried its first passengers on October 24, 1900. Private initiative was also responsible for opening the Mornington cable tramway on May 15, 1883, and the Kaikorai cable service at the end of the century. All these private lines were subsequently purchased by the municipal authorities. When the latter took over the Kaikorai service in May, 1939, the whole of the passenger services of Dunedin and suburbs came under Corporation control. For some of these details we are indebted to "Yesterday and Today in Otago," a brochure published under the auspices of the Court Committee of the Otago Provincial Centennial Council, of which 10,000 were presented to the schoolchildren of Otago.

## Bankhead Highway Tunnel, Mobile, U.S.A.

*This tunnel is composed of concentric steel tubes and concrete, the steelwork of which was built on shore, launched in sections, and floated out to and sunk in a trench in the bed of the Mobile river*

THE city of Mobile, situated some 30 miles up the Mobile river estuary from the Gulf of Mexico, is the only port of Alabama. It is on the western shore of the river mouth opposite Blakely island. In order to save a detour of 7½ miles and reduce traffic congestion, Mobile has now been connected with the island by a tunnel under the river channel, known as Bankhead tunnel, 3,390 ft. in length, of which 2,000 ft. are under the river. East of the island a 10½-mile causeway carries the highway to the eastern shore.

The method of constructing the underwater sections of the tunnel was that of pre-fabrication on land and then sinking the tube sections in a dredged trough in the river bed. This method was successfully used for the under river section of the new Chicago subways, described in our issue of May 31 last, page 772, and had been adopted for the new Rotterdam tunnel under the Maas, as outlined in our issue of May 31, page 768. The Mobile highway tube is, however, single, and carries a 21-ft. roadway for two traffic lanes. Five of the seven tube sections are each 298 ft. long and the other two are each 225 ft. in length. At the shoreward ends there are also transition sections connecting the main circular tube sections with the rectangular approach tunnels. At the island end, the rectangular tunnel runs up to ground level and is protected— from water piled up on the island by hurricanes—by a steel gate. The entrance at the Mobile end is an open ramp leading down to the western portal.

Each of the under-water tube sections is composed of an inner steel cylinder 30 ft. in diameter, surrounded by an octagonal steel tube having a minimum diameter of 34 ft. The two concentric tubes are tied together by radial ribs or flanges. Each section was fabricated at a local shipyard by welding, and concrete was poured into the inter-tubular space to a height of 10 ft. to give the section stability when launched. Watertight bulkheads were then fitted to the ends of each section, the watertightness of the whole section being tested by coating with soapy water and applying internal air pressure, so that any leak showed tell-tale bubbles on the outside.

Meanwhile, the trench to receive the tube had been excavated in the channel bed, and each section was launched and floated out to the trench for sinking. There the remainder of the concrete between the inner and outer tubes was poured until the section lost buoyancy, after which it was held suspended in slings and sunk deliberately into final position. The concrete lining to the inner tube, conduits for ventilation, lighting, power, and telephone services had previously been completed just before the final floatings.

Adjacent sections of tube were brought together by divers using ratchet turnbuckles, a projecting ring on one section fitting into an annular recess in the other with a rubberised gasket to make the joint watertight. The joint was then covered with concrete on the outside, poured under water.

Finally, the bulkheads were cut away and the adjacent tube sections were tied together by a welded ring of steel.

Ventilation is secured by exhaust fans on Blakely island extracting air from both sides of the roadway along the middle 400-ft. length of the under-water section of tube. In order to lessen the sudden transition from daylight to normal tunnel lighting, so trying to drivers of vehicles, special additional lighting is installed near each portal.

Work upon this tunnel was begun in July, 1939, and its cost is stated to be approximately \$4,000,000, according to our American contemporary, the *Scientific American*, to which we are indebted for the above particulars.

## Overseas Notes

### Public Service Mergers in New Jersey

Approval was given on June 12 by the Board of Public Utility Commissioners, to an agreement for the merger into Public Service Co-ordinated Transport of the following companies: Consolidated Traction Company, Rapid Transit Street Railway Company of the City of Newark, South Orange & Maplewood Traction Company, Orange & Passaic Valley Railway Company, Camden & Suburban Railway Company, Camden Horse Railroad Company, New Jersey & Hudson River Railway & Ferry Company, and Riverside Traction Company. Rentals on the foregoing companies for the period ended June 30, 1940, were paid. In the case of the Consolidated Traction Company dividends of \$2 a share were declared; \$0.337 was paid on the common stock of Riverside Traction Company, and \$0.625 on the preferred stock of that company; and \$5.875 on the common stock of the Rapid Transit Street Railway Company of the City of Newark.

### Transport in Malta

For nearly a decade, since the closing of the Malta railway at the end of March, 1931, the island has relied exclusively on road transport for its communications. The tunnels of the old railway, however, have proved invaluable as air raid shelters since the entry of Italy into the war and the resultant aerial bombardment of Malta at frequent intervals by Italian aircraft operating from Sicily, only 58 miles away. There is an excellent system of roads throughout the island amounting to 288 miles of first-class streets and roads, of which 92½ miles are asphalted, and 76½ miles of second-class streets and roads. According to the latest official figures which we have available, there are 580 motorbuses, 2,332 private cars, 602 private hire cars, 842 motor lorries, and 449 motorcycles licensed for service in the island apart from those owned by the Civil Government and the Service Departments.

## Road Transport and the War—14

*Road transport wages—Machinery of negotiation for the bus industry—Instructions to motor and horse drivers—Air raids and London buses—European fuel supplies and road transport—Alternative fuels*

The manufacture of cars for civilian use in this country has ceased. A recent inquiry into the numbers of new cars in the hands of dealers and manufacturers has shown that, after eliminating cars which, in the national interest must be exported, there is left for civilian use in this country a total of only 400, and half of these cars are of foreign manufacture. Before the war the number of cars newly registered in a year was 275,000, so that for every 700 which could be bought at that time there is now only one. The Ministry of Transport must see that the few unregistered cars available should go to those who need them most for national work. For this reason the Ministry could not entertain applications until it was known exactly how many cars could be kept for the home market. While applications for licences to purchase may now be made, it will be realised that the chances of success are very slight, except in the cases of those persons whose work cannot be done without a car, such as doctors in rural districts, inspectors of aircraft production, and the police, in so far as suitable second hand cars are not available for them. There is evidence, however, that there are still plenty of used cars available to the public. Licences current now number about 1,400,000, compared with a pre-war total of over 2,000,000.

### Road Transport Wages

The Road Haulage Central Wages Board has issued its proposals on the claim for an increase of 6s. a week which was submitted to it by the Transport & General Workers' Union. The proposals of the Central Wages Board, which are contained in Notice R.H.(5), are that the rates of pay shall be increased by 3s. 6d. a week for adults and 1s. 9d. a week for juniors. Other proposals affect the rates of pay of workers hauling agricultural produce in grade 3 districts, which must not be less than 54s. 6d. a week and the provision as to payment of a higher rate when a worker collects or delivers in a higher grade area than that of his home depot is to be amended to provide that workers from grade 1, 2, and 3 localities who collect or deliver in the London area shall receive grade 1 rate for such journeys, or the appropriate long distance rate, as the case may be, whether their depot is inside or outside the Metropolitan area. The proposals are to be considered by the area wages boards and if they are approved they will be made the subject of an Order by the Minister of Labour.

### Machinery of Negotiation for the Bus Industry

Machinery of Negotiation for the settlement of wartime disputes in the bus industry has been set up by agreement between the employers' organisations and the trade unions concerned. The agreements have been negotiated in accordance with the Order made by the Minister of Labour & National Service entitled Conditions of Employment & National Arbitration Order, 1940 (S.R. & O. 1940, No. 1305), which prohibits lock-outs and strikes and sets up a National Arbitration Tribunal.

The London Passenger Transport Board has made an agreement, covering its road staff, with the Transport & General Workers' Union under which, for the emergency period, an arbitration tribunal is established, the decisions of which are binding upon the parties. The tribunal consists of three members, namely, a chairman to be appointed by agreement between the parties (or, failing agreement, by the Minister of Labour & National Service), and two members, one to be selected by the board and one by the union. The tribunal may be assisted by representatives of the parties concerned sitting as assessors, one nominated by the board and one by the union. Sir John Forster has been appointed Chairman of

the tribunal, and the members are Mr. E. Gilbert Woodward (appointed by London Transport) and Professor R. H. Tawney (appointed by the Transport & General Workers' Union).

The National Joint Industrial Council for the Road Passenger Transport Industry, which is composed of representatives of the municipal passenger transport employers and employees, has agreed that matters which cannot be settled by the Machinery of the Council shall be referred to the Industrial Court for settlement.

The National Council for the Omnibus Industry, which caters for the company-owned bus undertakings, has agreed to vary the procedure of the council and, in addition, to make temporary changes in its constitution. The arrangements which have been agreed are as follow. The following additional provisions for settling differences have been adopted by the National Council as a war emergency, to be effective so long as the National Arbitration Tribunal exists or for the duration of the war, whichever is the shorter, in extension of clause 18 of the constitution adopted on June 14, 1940. These provisions shall remain in force thereafter until abolished by a majority vote of either the members elected to represent the employers' side of the council or the members elected to represent the employees' side of the council:—

1.—Any difference referred to the council pursuant to clause 18 of the constitution and not disposed of within two hours shall automatically be referred to a conciliation committee which shall be deemed to be a committee of the council for the purposes of clause 18 (ii) of the constitution.

2.—Such conciliation committee shall consist of ten members of the council, five to be elected by the employers' representatives and five by the employees' representatives, with the officers of the council *ex officio*. The chairman, or, in his absence, the vice-chairman, of the council, shall preside at meetings of the committee, or, in the absence of the chairman and vice-chairman, such other member of the council as the members present may nominate.

3.—The conciliation committee shall consider the difference submitted to them and shall be entitled to obtain such information from the parties to the difference or to consult with the parties as they may consider necessary, and shall within fourteen days report thereon to the secretaries for submission to the council.

4.—The council shall within seven days of the receipt of the report of the conciliation committee consider that report, and unless agreement is then reached the difference shall be automatically referred to a tribunal to be set up to consider the difference and to arrive at a final decision binding upon the parties thereto.

5.—The aforementioned limits of time may be varied by consent of the council.

6.—(a) The tribunal shall consist of a chairman who by his training and experience is deemed to be qualified to fill the position having regard to the matters to be referred to the tribunal. The chairman may either sit alone or be assisted by two other members as may be decided by the council as and when the tribunal is set up, such other members to be nominated, one by the companies' representatives on the council and one by the trade unions' representatives on the council.

(b) The members of the tribunal shall be persons not actively connected with the road transport industry or any of the trade unions concerned.

(c) The setting up of the tribunal and the nomination of the chairman shall be approved as required by clause 14 of the constitution.

(d) The tribunal may be assisted by not more than six members of the council, one-half nominated by the employers' side and one-half nominated by the employees' side of the council.

(e) The appointment of a secretary of the tribunal shall be made by the council.

(f) Unless the chairman is sitting alone, a quorum shall consist of three members of the tribunal. In the event of unfore-

seen circumstances preventing any member of the tribunal from acting, an alternative member may be nominated to fill the position during the absence of the appointed member, such alternative member to be nominated by the chairman and the vice-chairman of the council, or, failing agreement between them, by the council.

(g) When the tribunal shall consist of more than one member its decision shall be arrived at by a majority vote of its members.

(h) The tribunal shall publish its findings on any difference referred to it by the council within twenty-one days from the receipt of the reference.

#### Road Haulage Wages Boards to Meet Again

The Ministry of Labour & National Service announced on October 14 that the Area Wages Boards set up under the Road Haulage Wages Act, 1938, have now been reconstituted, and that arrangements have been made for each of the boards to meet at an early date. The names of the boards are as follow: Metropolitan, Scotland, North-Western, North-Eastern, South-Eastern, Eastern, East Midland, West Midland, Northern, Wales, and Western.

#### Increases in Road Haulage Rates

The Minister of Transport issued a statement on October 15 saying that his attention had been drawn to the tendency of haulage rates to increase. He believed that the industry appreciated the importance of restricting increases to those rendered necessary by increases in costs and would be ready to co-operate in any measure which during the present emergency he deemed essential in pursuance of the Government's policy of preventing any unnecessary increase in the cost of living. Nevertheless, in the interests of all concerned, and with a view to avoiding as far as possible the necessity for formal Orders, the Minister requested that no general increases in rates customarily charged should be made without submitting the proposals to the Regional Transport Commissioner. The Minister's powers are derived from Regulation No. 55 of the Defence (General) Regulations, 1939, under which the Minister, as the competent authority, so far as appears to him to be necessary in the interests of the defence of the realm or the efficient prosecution of the war or for maintaining supplies and services essential to the life of the community, may by Order provide, *inter alia*, for controlling the charges which may be made in respect of the carriage of goods by road.

#### Instructions to Motor Drivers during Air Raids

The London & Home Counties Haulage Contractors' Association has issued, for the information of drivers who are on the road during air raids, a card containing the following instructions:—

(1)—All instructions of the civil or military authorities must be obeyed.

(2)—If required by the police, turn your head lamp off, but leave your side lights and rear light on. This will mean that a "purple" message (lights warning) has been received.

(3)—When an air raid warning is given, you should: (a) turn your head lamp off and leave your side lights and rear light on; (b) proceed on your journey unless (i) enemy planes are in the immediate vicinity and it is unsafe to proceed, or (ii) you are ordered to stop by the civil or military authorities, in which case you should state the nature of the load being carried and, if it is on Government account, state this fact also.

(4)—If you do not proceed: (a) place your vehicle close to the kerb on the edge of the road; or in a car park or open space off the highway; or under trees; or in a side street if the road you are in is narrow or congested; (b) leave your side lights and rear light on so long as the vehicle is on the highway; (c) Immobilise your vehicle and make such provision for the safety of your load as is reasonable in the circumstances; (d) go to a shelter; (e) resume your journey when the raiders have left the vicinity unless there has been a warning of poison gas, in which case you should wait until the all clear signal has been given by handbells.

(5)—If the civil or military authorities ask you to put out your side lights, produce this notice, refer to paragraph 3 or

4 (b), point out the risk of accident and state that it is a Ministry of Home Security instruction that side lights should be left on. If the authorities still insist, you must, however, comply with their orders.

(6)—Take care always to see that all your lights are properly masked.

(7)—If you are carrying inflammable goods or explosives, take all possible precautions for the safety of nearby persons or property; if possible, park your vehicle in an open space away from the highway.

(8)—Read this notice very carefully so that you know exactly what to do, and then keep it for reference and for production to the authorities if necessary.

#### A.R.P. Halters and Ropes for Horses

An Order made by the Minister of Home Security came into force on October 21 to provide for securing horses in air raids. No horse may be on a road where the 30-mile limit is in force, unless it is wearing a halter with a rope or ropes attached. The halter must be of webbing, rope, or leather, with a rope of such length and strength as to enable the horse to be tethered securely; when not in use the rope must be so arranged that its whole length is readily available for tethering if required. While a hostile attack is in progress in the vicinity, the police may give instructions as to the manner and place of securing a horse and the place where a horse-drawn vehicle should be left. In the absence of police instructions drivers were required under this Order to leave their vehicles so as not to obstruct the traffic and to do their best to secure their horses. Now that the sounding of the air-raid sirens is intended to be interpreted as an "alert" instead of, as previously, a warning to take immediate cover, a new Order has been made under which the horse need not be secured when the air-raid "alert" is sounded, but only when the driver is instructed to do so by a police officer.

#### Air Raids and London Buses

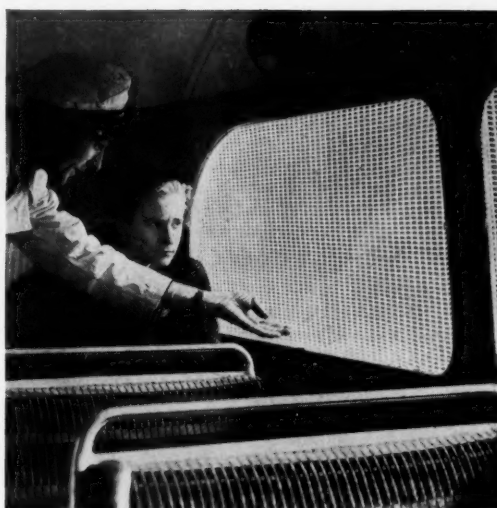
The past few weeks have provided ample scope for ingenuity in the provision of emergency transport services in the Metropolitan area in order to preserve lines of communication where sections of railway and road have been placed temporarily out of commission by reason of enemy action. Naturally passenger road transport, by reason of its mobility, has proved invaluable and the "flying squad" of 600 buses, which the London Passenger Transport Board has kept available to place in service at very short notice at any point required, has proved its value every day. These buses are used to fill gaps in Underground services, tram and trolleybus services, and main-line railway services.

The raids on the night of September 7-8 provided the first widespread delays to London suburban traffic and on September 8 the Ministry of Transport issued an official statement saying that instructions had been issued to the railways and to the London Passenger Transport Board to allow the widest possible flexibility in the use of season and ordinary tickets by any alternative service, and that every assistance would be given and no unnecessary formality stand in the way of travellers journeying between their homes and their places of work. On the morning of September 8 the London Passenger Transport Board issued a verbal instruction to the effect that bus conductors were to accept railway tickets on routes parallel to the railway, if train services were suffering from temporary disorganisation, and this position still obtains.

In addition to temporary expedients, various new war measures to assist passengers to travel more quickly to and from work have been introduced by the London Passenger Transport Board during the past ten days. On Wednesday, October 23, four Green Line coach routes were divided in London instead of running through Central London. The object is to make possible more regular running. The routes as running heretofore were: A1 (Ascot and Gravesend), A2 (Sunningdale and Gravesend), C (Chertsey and Tunbridge Wells), and H (Luton and East Grinstead). Each route in effect has become two routes, and the London terminus in every case is Eccleston Bridge, Victoria.



*One of the London buses damaged by enemy action*



*Anti-blast netting on London bus window*

On Thursday, October 24, between 7.15 a.m. and 9 a.m., and 4 p.m. and 6 p.m., a number of buses on ten busy routes began to run express between the inner suburbs and selected points in Central London. They are specially marked and special queues are formed for them. The object is to provide buses for the long-distance passengers approximately every 10 min. into London in the morning and out at night on each of the ten routes. The buses run express over the inner sections of the routes, stopping only at one or two intermediate points where large numbers of passengers are normally picked up or set down. Beyond the express sections, the buses stop at the customary stopping places. The scheme is experimental and may be reviewed in the light of experience, but so far it seems to have gained a considerable measure of popularity. The services and the sections of route over which buses run express are:—

Service	Express section
9 Barnes—Hyde Park Corner ...	Hammersmith—Hyde Park Corner, stopping at Kensington High Street (Barker's)
12 East Dulwich—Trafalgar Square	King's Arms, Peckham—Trafalgar Square, stopping at Camberwell Green and Elephant & Castle
17 Shepherds Bush—Oxford Circus	Shepherds Bush—Oxford Circus, stopping at Notting Hill Gate and Marble Arch
23 Becontree Heath—Aldgate ...	Becontree Heath—Aldgate, stopping at Barking, East Ham Town Hall and Poplar (Blackwall Tunnel)
25B Becontree Heath—Aldgate ...	Becontree Heath—Aldgate, stopping at Ilford Broadway and Stratford Broadway
36 Hither Green—Victoria station	Catford—Victoria station, stopping at Lewisham, New Cross and Camberwell Green
38 Chingford—Bloomsbury Square	Baker's Arms—Bloomsbury Square, stopping at Clapton (Kenninghall Road)
53A Plumstead—Trafalgar Square	Blackheath—Trafalgar Square, stopping at New Cross and Elephant & Castle
60 Hendon (Colindale station)—Aldwych	Hendon (Colindale Station)—Aldwych, stopping at Cricklewood (The Crown), Kilburn station and Marble Arch
76 Edmonton station—Moorgate	Edmonton station—Moorgate, stopping at Edmonton (Angel) and Tottenham (The Swan)

#### Anti-Blast Netting for London Buses

Quite a number of London buses may now be seen fitted with anti-blast adhesive netting to the windows to reduce the risk of accidents. This arrangement, which we recorded at page 357 of our October 4 issue, is still regarded as experimental. One of the illustrations which we reproduce is an impression of the view from inside the vehicle. The side windows, which are the ones covered, bear notices as follow:—

The fabric on the windows is for your protection  
Please do not interfere with it

The glass in the front is not protected with netting, so an explanatory notice says:—

These windows are made with toughened glass

By arrangement with the Ministry of Transport, bus undertakings operating in Scotland, the provinces, and other

places outside the London area, are lending up to 2,000 buses to the London Passenger Transport Board to help workers to travel more speedily to and from work. They are manned by the board's drivers and conductors. The first of these buses (from Halifax) was placed in service on route 11 (Liverpool Street to Shepherds Bush) and route 25c (Forest Gate to Victoria) in time for the evening peak period on Wednesday, October 23.

#### Fuel Supplies and Road Transport

The effect of war operations in Europe, the Near East, and the Far East, have resulted in such drastic disturbances to the distribution of petrol and fuel oil for road transport vehicles that in many parts of the world civilian road transport is seriously curtailed, in some places almost to the point of extinction.

In France no reliable information is available about road transport in the German-occupied zones, excepting that in Paris all motorbus services were suspended until the restoration of eleven routes to the suburbs on August 31, and that no taxicabs are plying for hire. According to refugees who have recently arrived at Lisbon from Paris, practically the only road motor traffic to be seen in Paris is that used for German officials and sight-seeing German troops. Even before the German occupation, the Paris motorbuses were subjected to severe disorganisation as the result of military requirements and the need for transporting refugees. In addition, enlistment had caused grave staff shortage and it was reported at the end of April that 966 women were then employed on the Paris buses in replacement of men on military service. It will be recalled that, in the war of 1914-19, almost all the Paris buses were used by the military authorities, mainly for meat transport, but the civilian needs for Paris were then met by a fairly extensive tramway service; all the trams have since been abandoned and none was available at the outbreak of the present war.

Towards the end of July a Portuguese subject, recently returned from Paris to Lisbon, said that German road traffic control was in force and that many road signs in German had been erected. At the same period the German authorities ordered that all official signs and notices in Strasbourg, and throughout Alsace, are to be in German only.

From August 28 no private cars were permitted to use the roads in non-occupied France, whatever fuel they burned. Efforts were being made to equip 50,000 lorries with gas-burning carburettors. It was reported that France had only 240,000 tons of petrol—about 5 weeks' normal supply—and that the railways had proved unequal to the burden which had been thrown on them. Postal arrangements had been disorganised and newspapers had warned their readers that it had become necessary to suspend the subscription service.

A report of July 21 said that in Upper Savoy horse buses had been placed in service, as no petrol was available; that many Alpine regions were entirely without transport; and that thrice-weekly motorcoach services were being provided elsewhere.

The territories which seem to be best equipped with fuel supplies and road transport services are those within the Russian sphere of influence.

During the Russian attack on Finland last winter, street traffic was reported to have been reduced in Leningrad and Kronstadt—probably because of the blackout. The blackout restrictions, which had applied from the beginning of the invasion (on November 30) were abolished on March 13, and street traffic has since been normal. In Helsinki the working of the trams was limited to the daylight hours during the invasion, and only skeleton bus services were maintained, due to petrol shortage. The blackout was partly lifted on March 14, and immediately the trams continued to run until 11.30 p.m. Bus services are understood to have been strengthened now that fuel supplies from Russia are available.

Transport curtailment in Sweden as the result of fuel shortage was announced on July 30, and all stocks of oil were taken over by the Government on August 6.

Since May 1 the use of all private motorcars has been banned in Denmark. On that date, also, the Copenhagen bus services were withdrawn, and elsewhere bus and lorry traffic has been curtailed drastically. Because of the shortage of petrol and fuel oil, the expedient has been adopted at Vejle of using pairs of horses to haul single-deck motorbuses. The United States Department of Commerce stated recently that petrol restrictions in Denmark under German control have become so harsh that national consumption has been cut to one-fifth of normal. The running of 100,000 vehicles has been suspended, and the remaining 50,000 receive only very limited supplies of fuel. It was announced over the Bremen radio on September 9 that as from that day the ban on night driving (including buses) which had been in operation in Denmark was lifted.

Owing to lack of oil fuel, the diesel buses which maintain the city services in Amsterdam and The Hague are now drawn by four horses and are worked at much reduced frequency.

At the beginning of October reports from occupied Holland expressed apprehension at the approach of winter. Although coal was plentiful in the country, lack of transport to carry it from the mines in Limburg was already in evidence. The barges normally used had been requisitioned by the Germans as part of their plans for the invasion of Great Britain. All petrol and its derivatives had been drastically rationed so that it was not possible to convey the coal by lorries and

the railway services had been severely curtailed. After 10 p.m. no trains ran until daybreak the next morning and it was reported that a considerable quantity of rolling stock had been sent to Germany. From August 28 motor traffic had been banned in Holland between 10 p.m. and 4 a.m. The only exceptions were German Army and official cars.

In Brussels, as in many large Continental cities, trams normally provide the main form of urban street transport. The tramway system is represented by about 280 miles of track, and is served by some 1,350 vehicles, of which 930 are single-deck electric tramcars, and 420 are trailers. This system is understood to be working now, but, under the German control, the trams do not run after 9.30 p.m. For many years past there has also been a service of motorbuses, supplementary to the tramway system, and at the time of the German invasion this comprised 44 route miles served by 60 single-deck petrol buses with similar types of bodies to those used in Paris. All the buses are reported to have been withdrawn from service, due to petrol shortage. A third unit of street transport was introduced shortly before the invasion, as the Brussels Tramway Company opened a trolleybus route 10½ miles long and including a gradient of 1 in 12½.

The motorbus service in Madrid was suspended on August 1, in consequence of the general Government order restricting the consumption of petrol and fuel oil for transport purposes. This service, which is maintained by London-type buses, had been re-opened only a short time earlier.

It was announced from Geneva on August 23 that the Swiss Government had decided to impose new restrictions with the object of reducing imports. For two classes of private cars involving about 4,000 vehicles, the petrol ration was to be withdrawn from the following month.

About 17,000 fewer motor vehicles were registered in New South Wales up to September 30 of this year, according to Sydney radio. This decline is attributed to the war and to petrol rationing, which has been introduced recently.

#### Alternative Fuels

Mr. D. R. Grenfell (Secretary for Mines) in the House of Commons on October 8 informed Mr. David Adams (Consent—Lab.) that returns furnished by the Ministry of Transport showed that at the beginning of September, 1940, there were 1,038 steam road vehicles in use, while at least 650 goods and other vehicles were running on producer gas. Complete returns were not available for the number of vehicles using coal gas as a fuel, but such information as was in his possession indicated that, in addition to those already mentioned, at least 1,500 vehicles were running on other home-produced fuels, the greater part employing coal gas.

Right: The City of Oxford Motor Services Limited has been a large user of A.E.C. buses for many years. Recent additions to a fleet which serves a wide rural area around the University city have included 20 Regent double-deckers and five Regal single-deckers. One of the last-mentioned is here seen loading up at the central bus station. All the vehicles operated by this company are maintained at a particularly high standard and are consistently smart. The company is associated with the British Electric Traction Co., Ltd. and with the Great Western Railway



## SIGNALLING ON THE SWEDISH RAILWAYS

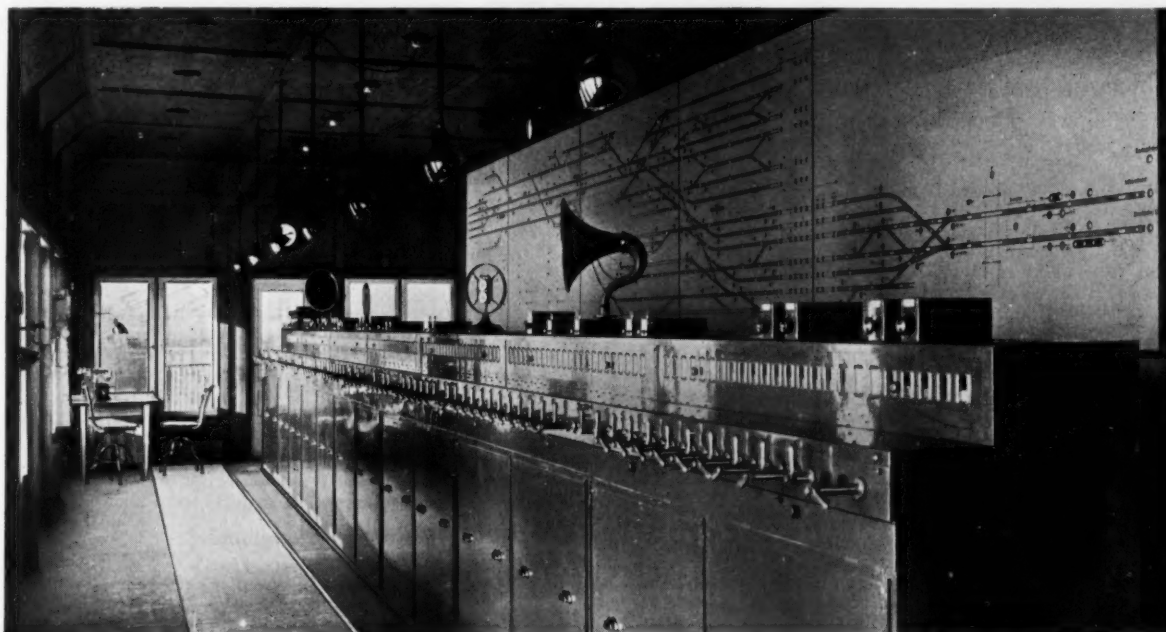
*A record of remarkable progress in modernisation in the past 20 years*

**I**NTERLOCKING was not introduced into Sweden until 1888, when the first installation was inaugurated on the State Railways. Thereafter, modern safety equipment, mostly of German pattern, gradually spread, and the larger stations were protected with well-constructed apparatus as opportunity offered. A serious collision at Malmslätt in June, 1912, caused by lack of efficient appliances, prompted the Government to appoint a commission, which, in due course, reported that more than half the State Railway stations still needed proper interlocking. At most of them, the points—and especially the facing points—were bolted by the signal transmissions, but the traffic imperatively demanded greater protection than this. The recommendations of the commission covered the whole question of signalling, traffic working,

enabled very strict colour specifications for signal glasses to be dispensed with.

The difficulty of distinguishing distant signal lights from others was obviated by making the former flashing lights. The danger of a green glass breaking was met by using a very strong wired glass, the installation of which was completed everywhere by 1930. A flashing green light now indicates "caution," and a flashing white means that the next signal ahead is "off."

The first colour-light distant, installed at Gnesta station, consisted of an acetylene light with a special lens combination and internal spectacle, worked by a gas mechanism governed by an electrically controlled valve. It was so successful that by 1930 25 per cent. of all distant signals



*Interior of recent type of power signal box*

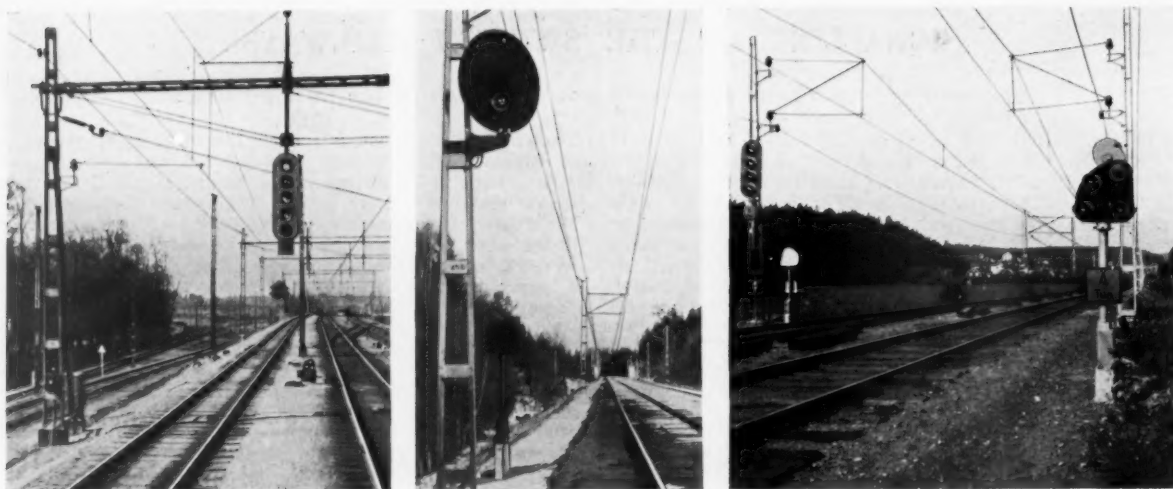
rules, and regulations, but, because of the economic difficulties created in Sweden by the 1914-19 war, the corresponding improvements were not carried out. Subsequently, the necessity of considering economy as well as safety led to a radical change in principles of operation and a breakaway from Central European tradition and ideas. The delay permitted advantage to be taken of the great developments in equipment in the interim.

The Central European types of signal were used in Sweden until 1915, all semaphores working, however, in the lower quadrant. For greater safety upper quadrant working was then introduced, and in 1918 the lighting of signals by acetylene was generally adopted. Colour-light signalling was first introduced in 1923 and is now standard practice. The previous night aspects had been red and green for stop signals, which were semaphores, and green and white for distant signals, which were discs. The green light of a distant in the "on" position could be distinguished from that of a semaphore in the "off" position only by the fact that all distant signals were on very short posts. A yellow light was tried as indicating "caution" in certain circumstances, but, with the general introduction of acetylene lighting in 1918, it was discarded, as the white light was then quite distinctive. This

were of this pattern. The gas mechanism was, however, used only where no power supply was available, ordinary colour-light units being used elsewhere. The latest practice is to attach a speed meaning to colour-lights, the triple green aspect being now restricted to entrances to goods and subsidiary lines. All home signals carry a distant unit, showing a flashing green or white light when the direct route is signalled, in order to repeat the starting signal in advance. This latter indication is said to be very distinctive.

### Shunting Signals

For many years Central European type point indicators were used at all points; and, until a special signal was introduced for that purpose, a few semaphores were installed as "stop shunting" signals. Resulting from a study of the practice in other countries, notably Great Britain and America, it was decided to signal all shunt movements and control them by position-light dwarf signals, with three-aspect working. Dwarf signals are now used for governing all movements within station limits, the third position being shown when a running movement is signalled. Colour-light starting signals are not now provided for converging outlet roads, dwarf signals being used instead, but a colour-light



(Left) Colour light home signal, with through movement unit, on traction standard and position light signals for shunt movement on ground; (centre) single lens type colour light signal (position light signals for reversible working just beyond); (right) on left colour light signal for ordinary direction of traffic; and on right position light signal for reversible working

advanced starting, or block section, signal is placed beyond the outermost pair of points; colour lights are thus restricted to a minimum. Articles published in our issue of September 1, 1933 (page 316), describing the signalling at Gothenburg, and in our constituent *The Railway Engineer* of January, 1935 (page 428), on the Stockholm signalling, clearly illustrate this fact. Certain dwarf signals have a fourth aspect, known as "neutral," authorising movements under the orders of a shunter. At many places point indicators remain in use, and in that case double slips have a single indicator displaying four distinct signs.

For many years all mechanical signalling in Sweden has been of the German double-wire type. At all stations the station supervisor controls the signal boxes within station limits, or, at the smaller stations, works the frame himself. The crank-handle type of frame is much in favour, being very suitable for working out of doors. Its original disadvantage of not allowing such long transmission to be worked as with the ordinary double-wire lever, has been overcome by using ball-bearing fittings and more closely spaced pulleys. Points situated at some distance from the supervisor often have a dual mechanism, enabling them to be worked locally with his permission. Power worked points are also frequently so arranged.

Standardisation of mechanical equipment began in 1912 and was completed four years later. Signals are invariably worked by camplate mechanisms. At small single-line way-side stations, which are closed at night, special locking is installed enabling signals to be cleared for traffic in opposite directions simultaneously. Key locking is in use at some stations. There is the usual route-holding locking, so common in Central Europe, and much use is made of track-locking sections in place of locking bars.

#### Block Working and Track Circuits

The original method of working was by timetable rule, and later by the telegraph message system, which was, in effect, block working. In 1906 the first Siemens a.c. lock-and-block apparatus was introduced and was subsequently extended widely to both single and double lines; in 1912 it was decided to work all important routes on this system. It did not, however, lend itself readily to the switching out of stations during hours of light traffic, which became increasingly dictated by the economic position, especially on single lines, and to put the equipment out of use temporarily and work by telegraph, as was sometimes done, was unsatisfactory.

Consequently, automatic signalling made its appearance in 1925, at first with ordinary, and then with light, signals of

the acetylene type. Experiments were begun with the intermittent feed type of track circuiting as recently as 1918, but gradually track circuiting on ordinary principles was introduced and extended, both a.c. and d.c. systems being used according to local conditions. Where there is single-phase a.c. traction, d.c. track circuits can be successfully worked, with suitable precautions. The first illuminated diagram was not installed till as late as 1925. Both track circuiting and automatic signalling have been widely extended of recent years, and in many instances—especially in recent new installations—both tracks of double lines have been equipped for both-way working, movements in the right direction being controlled by colour lights and those in the wrong direction by position lights. To enable the station supervisor to control the signalmen in his area, the Siemens block and also other types of apparatus have been installed.

#### Power Interlocking

The first power signalling was introduced at Nyboda in 1910. It was an all-electric system of German make, with mechanical locking and circuits of the Central European type. (All-electric working has been used exclusively.) In this and some other layouts several signal boxes were necessary, because there was no track circuiting, consequently there was little or no saving in staff costs. The severe weather conditions on the Lapland iron-ore line made mechanical working very difficult, and this led to the introduction of electric working there, using a.c. point motors; the frames on that line were installed in the stationmasters' offices.

Malmö was the first really important station to be equipped with power signalling. This was in 1925. The three original mechanical signal boxes had been supplemented by observation posts for the better supervision of the intensive shunting movements in the yard. The disadvantage of the point indicator system was particularly apparent in this case, and it was decided to provide a complete installation of position-light shunt signals with one central signal box, and automatic signalling on the adjacent block sections. These changes resulted in a saving of 22 men and considerable speeding up of the working. The locking frame was supplied by the Westinghouse Brake & Signal Co. Ltd. of London and Chippenham, with indication locking and signal selection. Trailable points were retained, and are still standard practice, with practically no locking between point levers. This is considered better for Swedish conditions, as it permits of the emergency use of points in winter months, even when frost and snow may prevent the use of others which, under English principles, might be interlocked with them. Internal locking mechanisms have superseded the hook and other outside

forms of point lock. The excellent results obtained with this installation soon led to others on similar principles but of Swedish design. Since 1927 electric locking has in the main superseded mechanical, in both large and small installations. In recent years C.T.C. apparatus has made its appearance.

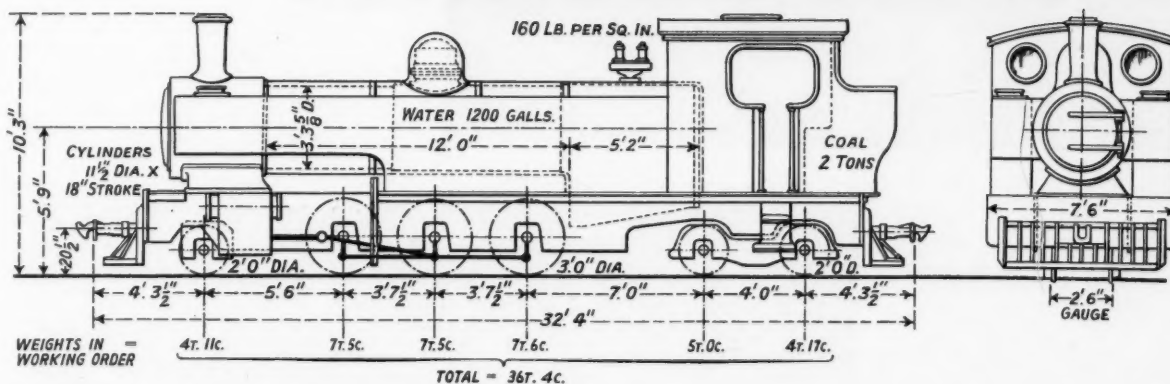
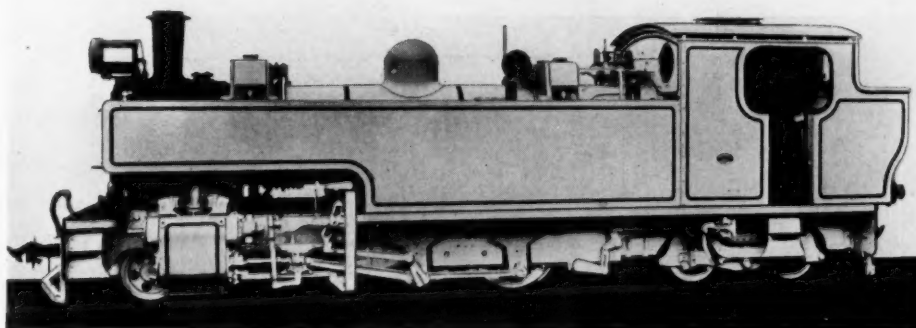
Early practice in Sweden invariably used accumulators for power operation, but it was costly, and trickle charging was soon introduced to reduce the number of reserve cells required. Where two sources of supply were available, direct working through rectifiers was used, with accumulators as final standby; later, however, they were dispensed with in many places. Where a.c. ground equipment was in use, accumulators could not be used as standby, and in that case petrol generator sets were installed; no standby was, however, considered necessary at most small stations.

Swing and—the now more common—lift bridges in Sweden are operated electrically with electrically worked safety siding points, light signals, and approach-locking control by track circuit. At many level crossings flashlight warning signals have been installed, especially if the crossings are unattended. Where barrier gates existed, these have been adapted for

power operation, though manual working is retained as a reserve. In places where crossings occur at frequent intervals, their operation has been grouped and placed in charge of the nearest station supervisor, with consequent elimination of the gatemen formerly employed. The barriers are lowered across the roadway by the supervisor when a train is approaching, but when it passes, each in turn is released and opens automatically, with minimum delay to road traffic.

These remarks apply mainly to the State Railways, but some of the most modern equipment, including C.T.C.—as described on page 376 in THE RAILWAY GAZETTE of September 15, 1939—is to be found on the privately-owned lines. The progress made in Swedish signalling in the last 15 years has been largely due to the ability and foresight of Mr. T. Hård, M.Inst.R.S.E., Signal Engineer of the State Railways, who contributed a comprehensive treatise upon the subject to the commemorative volume issued by the Swedish Government in 1931, and it is from this that the above notes have been made, with the co-operation of the signalling industry, both in Sweden and in other countries, including Great Britain, to bring them up to date.

### Tank Locomotives for the Mysore State Railway



THE 2-6-4 tank locomotive illustrated herewith is one of a series built by W. G. Bagnall Limited, Stafford, for a 2 ft. 6 in. gauge section of the Mysore State Railways. It is of a new design, incorporating outside cylinders and framing, piston valves operated by Walschaerts gearing and up-to-date equipment. Inspection showed the workmanship throughout to be of a high standard.

The engines which were designed and built under the supervision of Messrs. Rendel, Palmer & Tritton, have cylinders 11½ in. dia. by 18 in. stroke, coupled wheels 3 ft. dia., bogie wheels 2 ft. dia., coupled wheelbase 7 ft. 3 in. and total wheelbase 23 ft. 9 in. The total heating surface including superheater is 621 sq. ft. distributed as follows: firebox 65 sq. ft., tubes 437 sq. ft., superheater 119. The grate area is 14.8 sq. ft. and the working pressure 160 lb. per sq. in. The tanks will hold 1,200 gal. of water, and the coal bunker provides a space of 90 cu. ft. In working order the engine

weighs 36 tons 4 cwt. and develops a tractive effort of 9,000 lb. at 85 per cent. boiler pressure.

The equipment of the locomotive includes Ross pop safety valves, Melesco superheater with Stirling header, two Gresham & Craven injectors with 6-mm. cones feeding to a clackbox on top of the boiler, United States metallic packing for piston rods, steam operated brakes with Gresham & Craven combined graduable steam brake valve and Super Dreadnought vacuum ejector for train brake. Ajax hard grease lubrication is applied to the coupled axleboxes and coupling and connecting rod bushes. Lambert wet sanding; J. & W. Roberts asbestos mattresses are utilised for lagging. The locomotives are designed to haul passenger and mixed trains of 100 tons weight exclusive of the engine. The maximum gradient is 1 in 100 uncompensated and the maximum axle load 7.5 tons. Coal of approximately 11,000 B.T.U. per lb. is used as fuel.

## Railways and the War—43

*Right : Some of the many German airmen who have been taken prisoners of war when their aircraft have been brought down in attacks over Great Britain. They are leaving a London station by train for an internment camp*



*Left : The first batch of Indian pilots arriving at a London terminus recently*

*Right : German children leaving Berlin by train for country districts to escape the R.A.F. bombing of the capital. This picture, which was received in London on October 21, is the first of its kind to reach this country. It will be noticed that a band is playing the train out, and that the children are waving miniature swastika flags—a striking contrast with British methods*



## RAILWAY NEWS SECTION

### PERSONAL

Captain Oliver Lyttelton, D.S.O., M.C., has resigned the Chairmanship of Lightalloys Limited on his appointment as the President of the Board of Trade. Mr. W. H. Grieve, Managing Director of Lightalloys Limited, has been elected Chairman.

Mr. George Gibson was on October 23 elected Chairman of the General Council of the Unions, an appointment which carries with it the presidency of the Trades Union Congress at the close of his year of office. Mr. Gibson, who was formerly General Secretary of the Mental Hospital & Institution Workers' Union, served in the last war and was mentioned in dispatches for gallant and distinguished conduct, and received a Commission.

The directors of the Great Western Railway have accepted the resignation of Mr. A. G. Hubbard, Chief Legal Adviser to the company. An editorial note and a biography of Mr. Hubbard appeared in our issue of August 2. The chief responsibility for legal advice to the company now devolves upon Mr. C. H. Whitelegge whose appointment as Solicitor & Parliamentary Agent we recorded also in our August 2 issue.

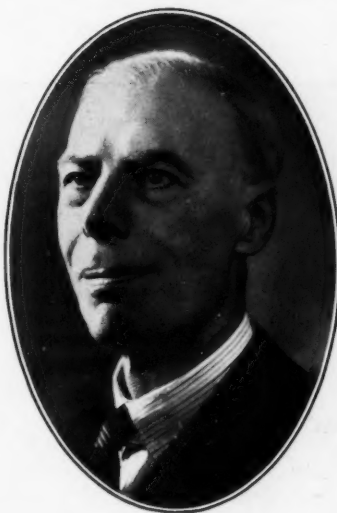
Mr. John F. Heaton has been succeeded by Sir John Inskip as Chairman of the Bristol Transport Joint Committee, having completed his three-year appointment from October 1, 1937, in that capacity. Mr. Heaton represents the Bristol Tramways & Carriage Co. Ltd. (a G.W.R. associate), and Sir John Inskip the Bristol Corporation. Under the Bristol Transport Act of July 30, 1937, the company's tramways and light railways in Bristol were sold to the Corporation with a view to replacement by buses, and the local transport (both company and Corporation) of the city has been worked since October 1, 1937, by the company under the general supervision of the Bristol Transport Joint Committee, consisting of an equal number of representatives of the company and the Corporation.

Mr. Charles H. Luke, who has been for nearly eighteen years Advertisement Manager of *The Times Trade & Engineering*, has now retired and his future address will be The Manor, Ascott-under-Wychwood, Oxford.

We regret to record the death on October 28 of Mr. David Cooper, D.L., J.P., who was General Manager of the Glasgow & South Western Railway from 1894 until 1922.

We are publishing this week a portrait of Mr. Joseph Walker who, as recorded briefly in our issue of October 4, has retired from the position of Assistant Traffic Manager, Great Northern Railway (Ireland). A longer account of Mr. Walker's career was given in the October 18 issue of THE RAILWAY GAZETTE.

One of the first recipients of the Southern Railway Meritorious Service Medal was Captain H. H. Golding, of the company's cross-Channel service, for outstanding work in evacuating inhabitants of Guernsey during severe aerial bombardment of the island at the



Mr. Joseph Walker

Assistant Traffic Manager, Great Northern Railway (Ireland), 1935-1940

end of June. Owing to the fact that he was engaged on another vessel at the time, Captain Golding was unable to be present when the Chairman of the Southern Railway presented the medals, and his award was handed to him recently by Mr. R. P. Biddle, J.P., Docks & Marine Manager, at Southampton, in the presence of many of the company's officials and staff. The gathering also included the Flag Officer i/c Naval Operations, Southampton, the Garrison Commander, and the Principal Sea Transport Officer. In presenting the medal, Mr. Biddle briefly recapitulated the circumstances in which Captain Golding had earned it and again congratulated him. The Flag Officer in Charge also complimented Captain Golding on his distinction and took the opportunity of paying special tribute to the splendid co-operation which exists between the Royal Navy and the Merchant Navy. It will be recalled

that in our issue of August 23, we recorded, at page 212, the inauguration of a special war medal, known as the Southern Railway Meritorious Service Medal, to be awarded by the Southern Railway to members of its staff for deeds of outstanding merit performed in connection with the war.

Mr. J. W. Keller, M.P., General Secretary of the Rhodesia Railway Workers' Union, has been appointed Minister without Portfolio in the Southern Rhodesia Cabinet, with duties mainly in connection with industrial legislation and labour matters in the colony. Mr. Keller, who was born in London in 1885 and worked for the London & North Western Railway, went to Rhodesia in 1912 to join the railways. He saw service with the Artists Rifles during the war of 1914-1919 and returned to Rhodesia after the armistice. Mr. Keller has been Member of Parliament for the Bulawayo Raylton constituency since 1928.

Mr. E. Cheadle, for many years a well-known figure in the sphere of railway advertising, has retired after 44 years of service with the Lancashire & Yorkshire and the London Midland & Scottish Railways. Mr. Cheadle, who is a native of Farnworth, near Bolton, entered the Advertising Department of the Lancashire & Yorkshire Railway at Manchester in 1896, and from 1925 to 1931 was Head of the Advertising & Publicity Section, District Passenger Manager's Office, L.M.S.R., Manchester. In 1932 he came to London as Assistant to the Advertising & Publicity Officer (Mr. G. H. Loftus Allen), dealing mainly with district advertising arrangements and with the extensive joint advertising schemes carried out by the L.M.S.R. in conjunction with the numerous important holiday resorts on the system.

Lt.-Colonel John Beaumont Neilson, C.M.G., D.S.O., Chairman of Metropolitan-Cammell Carriage & Wagon Co. Ltd., has been elected to the board of Lloyds Bank Limited. Among other directorships held by Colonel Neilson, he is Deputy Chairman of Vickers Limited, and Vice Chairman of Baldwins Limited.

We regret to record the death of Mr. George Hinde Nisbett, Deputy Chairman of British Insulated Cables Limited. As announced in our issue of June 21, at page 869, Mr. Nisbett recently retired from his position as Managing Director of the Company on account of ill-health. He had been an executive officer of the Company for 46 years and Managing Director for 12 years.



(Left) Repairing a steel girder bridge damaged by a bomb. (Right) Construction of a strengthening wall. The figures include from left to right: Mr. R. Holland-Martin, Chairman, and Mr. E. J. Missenden, General Manager, Southern Railway, Sir John Reith, at the time Minister of Transport, and Mr. George Ellson, Chief Engineer, Southern Railway



Traffic Manager and some of his traffic controllers planning emergency services



Shoring up damaged arches with trestling. The Pioneer Corps is lending assistance  
(See opposite page and editorial article on page 452)

## TRANSPORT SERVICES AND THE WAR—62

*Italy declares war on Greece—Southern Railway and air raid damage—New G.W.R. timetable—Irish steamer bombed—Emergency travel information booths—Summer time—Evacuation of children*

Early on October 28, after the expiry of a three-hour ultimatum presented by the Italian Government to the Greek Government, Italian forces from Albania invaded Greece, thus extending the conflict to the Balkans. The north-west corner of Greece contains no railway, and the Italian forces from Albania have some 30 miles of difficult country to traverse before reaching the nearest spot on a Greek railway, namely Florina, on the Salonika—Kenali—Monastir (Bitolj) line. The

(former Dedeagatch) and to Istanbul. A new branch was opened in May last from Angista, between Serres and Drama on this line to Amphipolis, a port near the mouth of the River Struma. The 2-ft gauge line laid by the British army during the last war from Sarakli, some 10 miles north of Salonika, due eastward to Stavros is operated by the Greek Government, a bus service connecting Sarakli and Salonika, though there is a project to build a standard-gauge line throughout from Salonika via Stavros to Amphipolis and Angista.

An important standard-gauge connection has been under construction for some years between the terminus of the Thessalian system at Kalambaka and Verria on the Salonika—Kenali line, but financial difficulties have held up its completion. Another metre-gauge line is the short North-Western system from Agrinion to Kryoneri on the Gulf of Patras. The Peloponnesus (Morea) peninsula in the south of Greece is served by the metre-gauge Piræus-Athens-Peloponnesus Railway which was recently taken over by the Greek Government. Yet another metre-gauge line is the Attic system providing a local service from Athens to Kephissia and connecting Athens with Laurium in the south-west. The Kephissia line has recently been electrified and a connection is under construction in tunnel beneath Athens to the Athens-Piræus electric railway.

Until 1916 there was no railway communication between Greece and the rest of Europe, but in May of that year the link between Papapouli, on the former Turko-Greek frontier, and Platy on the Salonika—Kenali line was opened to traffic, and this route has been served since shortly after the last war by a section of the Simplon-Orient Express, giving direct communication between Athens, Salonika, and Paris.

The Greek railway system is characterised by long gradients as steep as 1 in 40–50 and by numerous curves. It is single line throughout except between Athens and Piræus and Athens and Kephissia. Speeds are not high, and power is provided principally by 10-coupled locomotives, those for passenger service of 2-10-0 type with 4 ft. 9 in. coupled wheels, and those for goods service of the 0-10-0 type with 4 ft. 3 in. coupled wheels. Much of the country traversed is mountainous, and there are many heavy earthworks, bridges, and tunnels, particularly on the Athens-Salonika section.

### The Southern Railway and Air Raid Damage

Since the beginning of the intensive air raids on London the railways have been able to maintain their services to a standard which has frankly caused general surprise and gratification. Considering how night after night for more than six weeks bombs have been rained down on this country, particularly over the London area, it is remarkable that the normal day-to-day pursuits of those who have to reach their work by rail can still be carried on with so comparatively little interruption.

In our issue of October 11 we attempted to give some idea of the sort of problem the engineers are having to solve, and this week we outline the measures which the Southern Railway (whose extensive suburban system presents a tempting target for the enemy) takes to keep its services in operation, despite temporary obstructions. Reports are continuously collected and collated at the company's various control centres, which were set up in anticipation of just such troubles as are now being encountered. Extemporised services are then arranged to cover sections of line temporarily blocked. The arrangement of these services is regarded as of the greatest importance, and engages the constant personal attention of the Traffic Manager, Mr. R. M. T. Richards, as well as that of the Superintendent of Operation, Mr. H. E. O. Wheeler, through the various Divisional Superintendents. Mr. George Ellson, the company's Chief Engineer, is, of course, responsible for the restoration of the damaged lines,



Sketch map of the railways of Greece

next nearest railway is at Kalambaka, the terminus of the metre-gauge Thessalian system which, after crossing the Hellenic State Railways main line in the plain of Thessaly, runs down to the port of Volo on the Aegean Sea.\* A metre-gauge branch connects Larissa with Volo, and there is a 60-cm. extension from Volo to Mille.

The map reproduced herewith indicates the somewhat sparse railway system of Greece as it exists today. The main line of the Hellenic State Railways runs from Piræus through Athens and Larissa to Salonika. Thence lines radiate westward to Kenali and Guevgueli on the Yugoslav frontier, the former leading to Monastir, and the latter to the main line northward through Skoplje, Nish, and Belgrade, to Central Europe. From Monastir, into which Greek trains run, there is a Yugoslav State Railways branch to Veles on the main northern line. A third line from Salonika is that leading through Eastern Macedonia to the port of Alexandropole

\* An article on the Hellenic State Railways was published in our issue of March 4, 1932.

work for which preparatory measures were taken before the war, and which is being tackled with immense energy and enterprise. These two departments, together with all other departments of the Southern Railway concerned, work in the closest co-operation towards the maintenance of services as nearly normal as is possible.

#### The New G.W.R. Timetable : First Class Sleeping Cars

Relatively few changes have been made in the new G.W.R. timetables (which came into force on October 28) from the service brought into operation on February 5, 1940. It will be remembered that certain cancellations of long-distance trains took effect early in July, but by degrees some of these

train is run on Saturdays only from Bristol at 1.45 p.m. to London, calling at Bath, Chippenham, and Swindon, and reaching Paddington at 4.35 p.m.

First class sleeping cars are being restored on the London—Penzance service on Monday next, November 4.

#### G.W.R. Steamer "St. Patrick" Twice Attacked

During August the Great Western Railway mail steamer *St. Patrick* was attacked by German aircraft twice within two days. On August 19 the vessel was raked with machine-gun bullets from enemy aircraft which had also dropped two bombs nearby. The German aeroplane glided out of the sun and flew in line with the vessel just above the mast. There were two casualties; one was a member of the crew who later died as a result of his wounds, and the other a passenger who received several bullets through his legs. On the second occasion, August 20, the steamer came in view of three German bombers which were attacking a tanker about three miles away. The enemy aeroplanes flew in to attack the *St. Patrick*, which was off the south Wexford coast, and dropped five or six bombs but without causing casualties. No serious damage was caused to the vessel by either of these attacks. On both occasions the *St. Patrick* steamed a full-speed zig-zag course with her guns firing continually. The second engagement lasted for about twenty minutes.

#### "Extra Effort Means Victory"

A message from Mr. E. J. Missenden, General Manager, Southern Railway, has been issued in leaflet form, under the title "Extra Effort Means Victory," to all members of the Southern Railway staff. It covers two points, namely, allotments on railway land; and first aid to the injured, and the text is as follows:—

#### ALLOTMENTS ON RAILWAY LAND

My circular dated January 1 last inviting the staff to avail themselves of pieces of railway land as allotments resulted in approximately 1,160 plots being taken up. With the land already in occupation comprising about 14,000 plots, we have a useful area of 550 acres under cultivation. But this is not enough, as I feel there are many more members of the staff who could make good use of allotments. The more intense becomes the enemy's attempt to develop his *Blitzkrieg*, with its possibilities of interrupted or delayed communications, the more important it becomes for every one of us to help, as far as in us lies, to make our country self supporting.

Vegetables, especially fresh vegetables, is an obvious case. That is why I am reminding you there is still plenty of land available. That is why I want to see more allotments being taken up by Southern railwaymen, so that produce, especially potatoes, onions, carrots, etc., can be stored against the winter. This autumn's "Dig for Victory" campaign will, I hope, become the immediate concern of more members of our staff. Applications for allotments should be made to Mr. A. Endicott, Estate and Rating Surveyor, Elmstead Woods station. Such allotments will be available to the staff at 6d. per rod, or in cases where new ground has to be broken up, tenancies will be granted rent free for a period of twelve months.

#### FIRST AID TO THE INJURED

It is hardly necessary to emphasise the advantages to be gained by possessing a knowledge of first aid. Classes in this connection are now about to resume and members of the staff who are already qualified first aiders need no message of encouragement to stimulate their efforts. On behalf of the directors, myself, and chief officers, I desire to thank and congratulate all those who have made themselves efficient and thus have the honour to wear the badge with the eight-pointed cross of St. John, and to serve in that great army of humanitarian service which, as never before, is being given the opportunity of bringing help to the afflicted, and efficient aid to the injured and suffering.

Many more first-aiders are needed everywhere, and I urge each head of department, stationmaster, and supervisor to encourage their staff to avail themselves of the facilities at their disposal for attending first aid classes during the session now commencing. At places where there is not a sufficient number of staff to form a class, facilities will be granted for



The R.E.C. poster announcement of the new sheeting Order

have been restored, such as the 9.5 a.m. from Paddington to Bristol and the 1.30 p.m. to the West of England with their corresponding return trains; the latest restorations are the 6.35 p.m. from Paddington to Cheltenham (enabling the 6.30 p.m. to Plymouth, with which the former was combined, to resume non-stop running to Chippenham), and the independent working of the 7.45 a.m. from Bristol to Paddington, calling only at Bath, Chippenham, and Didcot, and arriving at 10.30 a.m., instead of combining at Swindon with the 7.20 a.m. from Cheltenham. The most important of the expresses which remain permanently cancelled are the 3.55 p.m. from Paddington to Swansea, the 5 p.m. to Plymouth (the working of which from Bristol onwards is taken over by the 4.15 p.m. down), the 10.45 a.m. to Cheltenham, the 8.30 a.m. and 12.45 p.m. to Wolverhampton *via* Oxford, and the 2.45 p.m. to Bristol *via* Devizes, the 6.30 a.m. from Swansea (8 a.m. from Cardiff) to Paddington, the 2 p.m. from Cheltenham to Paddington, the 4.0 and 5.42 p.m. from Wolverhampton to Paddington, and certain other up services. With additional stops at Didcot and Reading, the 11.25 a.m. from Kingswear is now booked into Paddington at 6.20 instead of 5.42 p.m., but through passengers, of course, have the use of the Torbay Express service, leaving Kingswear at 12.15 p.m. and reaching Paddington at 5.30 p.m. A new buffet car

travelling to the nearest station where a class exists. Information in respect thereto can be obtained from the local district or class secretaries, whose names and addresses are available at every station and depot, or information may be obtained direct from Mr. E. Uzzell, Welfare Officer, Waterloo.

#### Bravery Awards for L.M.S.R. Employees

Awards have been made to two L.M.S.R. employees who have performed acts of bravery. A dockgatemanager has received a bar to the Stamp Medal; a Chief Foreman the Stamp Medal, and the wife of the latter a gold wristlet watch. The deed which won for Dockgatemanager W. J. Mansell a bar to his medal took place in darkness, with enemy aircraft flying overhead and in face of anti-aircraft gunfire. Fully clothed, he dived into the dock to rescue a colleague who had fallen into the water. The lifeline to the first lifebuoy thrown to assist the drowning man was carried away, and Mansell supported his colleague until a second lifebuoy was thrown, and a boat eventually reached the spot. The original medal was also awarded to Mansell for a rescue from drowning. Chief Foreman H. J. Taylor was awarded the Stamp Medal for bravery and initiative in the face of sustained attacks by enemy aircraft. Though off duty when the incident occurred, Taylor immediately proceeded to his depot and took charge of operations. Under his guidance, 51 horses and many vehicles were saved from burning. He remained on duty until he was exhausted. Chief Foreman Taylor's wife was also the recipient of a gold wristlet watch from the company for the part she played on the same occasion. Her efforts in obtaining assistance, while the air raid was in progress, enabled the horses to be removed to a place of safety and undoubtedly greatly contributed to the successful evacuation of the animals.

#### Emergency Travel Information Booths

Information booths to help the travelling public are to be set up at all the most important traffic centres in London and the suburbs. This innovation is part of a large scheme being planned by the Railway Executive Committee to give travellers immediate information of alternative services when restrictions are in force from time to time on various routes. Intelligence officers, wearing a distinctive armband, will also be on duty at stations where, owing to special war circumstances, large numbers of passengers may be expected. These officials will be provided with the latest available details of alterations in services and diversions caused by enemy action,

and will advise passengers of the best way to and from their destinations. Booths were in use last week at Wimbledon, Surbiton, and East Croydon stations and others were opened on Monday last (October 28) at Hither Green, Bromley South, Sutton, and Woolwich Arsenal stations. Other stations, particularly in Central London area, will be equipped with information booths as staff, telephones, and equipment can be made available.

#### The Belgian Railways

The *New York Times* learns from Brussels that at the beginning of October the Belgian National Railways Company announced in a special report that 4,185 km. (2,600 miles), or 82.5 per cent. of the Belgian railways were once more open for traffic. There were stated to be 618 passenger and 523 freight trains running daily. The total amount spent so far on the reconstruction of the railway system was estimated at 220,000,000 Belgian francs. It was expected that another 100,000,000 francs would have to be raised, however, to complete the work.

#### Summer Time

It has now been announced officially that the Government has decided to extend summer time throughout the winter. Previously the period of summer time had been extended to the night of November 16-17.

Summer time in Germany, which was to have ended on October 6, was officially extended for the duration of the winter, and similar steps have been taken in Italy and the German-occupied countries.

#### Evacuation of Children

Press reports from Germany indicate that several hundreds of thousands of children from Berlin, Hamburg, and other towns frequently raided by the R.A.F., are being conveyed to places less likely to receive intensive air raids. The German State Railway is said to have announced the running of 75 special trains during the next few weeks exclusively for the transport of such children. An illustration showing the departure of one of these trains from Berlin is reproduced at page 466.

Beginning today (November 1) arrangements are being made whereby visits to North-East Coast evacuees may be made by any train on any day. Previously the scheme arranged by the Minister of Transport provided for visits of parents to evacuated children by special trains running on specified Sundays.

## Railway and Other Reports

### Bengal-Nagpur Railway Co. Ltd.

—The board has declared from surplus profits a final half-yearly dividend in respect of the year ended March 31, 1940, at the rate of 5s. per £100 ordinary stock, payable on January 1, 1941, making, together with the guaranteed interest of £1 15s. per £100 ordinary stock then due, a distribution of £2 per £100 ordinary stock less income tax.

### South Indian Railway Co. Ltd.

At a meeting of the board on October 16, it was decided to recommend the undermentioned dividend: Final on ordinary stock of 1½ per cent. (nil from surplus profits and 1½ per cent. guaranteed interest) less income tax, making with the 2½ per cent. paid on July 1, 1940, a total of 4 per cent. on account of the year 1940, payable on January 1, 1941.

**R. & W. Hawthorn, Leslie & Co. Ltd.**—The accounts for the year ended June 30 last show that after providing for depreciation, taxation, contingencies, and fees net profit amounted to £162,736, against £162,015. The final dividend is 7 per cent. (same), again making 10 per

cent., less tax, for the year, and there is a bonus of 2½ per cent. tax free (same). A transfer of £85,000 is made to general reserve, leaving £51,167 to be carried forward, against £41,808 brought in.

### British Electric Traction Co. Ltd.

—Interim dividend on deferred 15 per cent. actual, less tax—the same as a year ago.

**Railway & General Investment Trust Limited.**—Ordinary dividend for the year to November 30, 1940, is 5 per cent. (against 4½ per cent.).

**Lightalloys Limited.**—A final dividend is recommended of 12½ per cent., making 25 per cent. for the year. For the previous year the dividend was 35 per cent.

**Paterson Engineering Co. Ltd.**—Net profit for the year to April 30 last was £15,791, against £20,963 for 1928-39. The dividend of 10 per cent. and the bonus of 2½ per cent. on the ordinary shares are the same as for the previous year, and the amount carried forward is £40,310, against £34,543 brought in.

## Forthcoming Events

- Nov. 5 (Tues.).—Institution of Civil Engineers, Great George Street, London, S.W.1, 1.30 p.m. Presidential address by Sir Leopold H. Savile, K.C.B.  
Nov. 9 (Sat.).—Institute of Transport (Metropolitan Graduate), at Inst. of Electrical Engineers, Savoy Place, W.C.2, 3 p.m. "Trolleybuses in London," by Mr. E. C. V. Jubb.

**CENTRAL ARGENTINE MORATORIUM.**—An amendment by Lord Luke that a moratorium scheme of arrangement should not be extended beyond 2½ years without the holders of the 4 per cent. and of the 5 per cent. debenture stocks, and of the 5½ per cent. notes being consulted at separate meetings, was accepted by the directors of the Central Argentine Railway Limited at meetings of those holders which took place in London on October 29. The scheme as originally drafted left it at the absolute discretion of the stockholder's committee, if requested by the company, to extend, by resolution, the moratorium period for a further three years. The scheme was explained in an editorial article on page 427 of THE RAILWAY GAZETTE for October 25.

## STAFF AND LABOUR MATTERS

### Decisions by the Chairman of the R.S.N.T.

The following decisions by the Chairman of the Railway Staff National Tribunal on claims submitted to him by the National Union of Railwaymen, were issued on October 11:—

#### RATES OF PAY OF AUTO-TRUCK DRIVERS

Decision No. 14 deals with a claim by the National Union of Railwaymen "That the National Agreements should be varied to provide that men employed driving auto-trucks at goods and passenger stations should be paid at the rate of 60s. a week." Evidence submitted to the Chairman showed that at the present time auto-trucks at passenger stations are driven by, amongst others, parcel porters, while at goods depots the trucks are driven by men graded as goods porters. Whether at passenger stations or goods depots, auto-trucks may be operated only by duly authorised men and men receive authority to drive only after a short period of training and test. The trucks are never used upon the public highway.

The union contended that since the elimination and absorption of auto-carrier drivers and electric truck operators in the standard grades of parcel porter and goods porter under the National Agreement of March 20, 1920, new and heavier types of trucks, some of which were of increased horsepower, had been introduced; that they pulled increased numbers of trailers and that generally the work of the drivers had become more arduous, required a wider knowledge both mechanical and otherwise and involved added responsibilities towards passengers using passenger platforms. These factors it was claimed justified the present claim.

The companies, while admitting that during recent years the use of auto-trucks had been extended and that heavier and more powerful types of vehicles had been introduced, pointed out that auto-trucks were in use on the platforms of certain passenger stations, and at certain goods stations, prior to the date of the National Agreements. As compared with road motor vehicles, it was stated, the speed and capacity of auto-trucks was low, any maintenance duties undertaken by the drivers were of the simplest kind, competency in driving could speedily and easily be acquired, and a driver's responsibilities were in no way commensurate with those which rested upon the drivers of road motors.

In his decision the Chairman states that after carefully considering the evidence and arguments of the parties he is unable to find in favour of the claim as made. He is, however, of the opinion that in view of the extension since 1920 in the use of the auto-truck and of the capacity and power of the vehicles now used, some addition should be made to the wages of those

required regularly or for a substantial period of their working time to drive them, and awards as follows:—

#### (1) (a) At Passenger Stations.

Men who are required regularly to drive auto-trucks and are graded and paid as parcel porters shall receive a sum of 2s. 6d. weekly in addition to the appropriate London, industrial or rural parcel porter's rate.

(b) Other parcel porters who are required to drive auto-trucks as part of their ordinary duty for not less than 25 per cent. of their weekly working time in any week shall receive in respect of such week a sum of 2s. 6d. in addition to their appropriate London, industrial or rural parcel porter's rate.

#### (2) At Goods Stations.

Goods porters qualified to drive auto-trucks and required to drive the same for not less than 25 per cent. of their weekly working time in any week shall receive in respect of such week a sum of 2s. 6d. in addition to their appropriate London, industrial, or rural goods porter's rate.

(3) This award shall operate as from the beginning of the first pay period following the date hereof.

(4) Nothing in this award shall be taken as applying to workers above the grades of parcel porter and goods porter, who from time to time are engaged in the driving of auto-trucks.

### Fogging and Snowstorm Duties

Decision No. 15 deals with a claim by the National Union of Railwaymen "That where a man is required to return to duty for the purpose of performing fogging or snowstorm duty within a period not exceeding two hours of the completion of his rostered turn, the additional duty is to be treated as continuous with the rostered turn."

In October, 1928, the railway companies and the National Union of Railwaymen made an agreement which was divided into two parts, the first of which dealt with "Fogging duties and snowstorm duties" and the second with "Emergency or special duties (other than fogging or snowstorm duties)."

In that part of the agreement which dealt with "Emergency or special duties (other than fogging or snowstorm duties)" the parties incorporated the principle laid down by the National Wages Board in Decision No. 33, namely, "if a man is required to return to duty within a period not exceeding two hours of the completion of his rostered turn, the additional duty shall be treated as continuous with the rostered turn." They did not, however, either expressly or by reference, incorporate that principle in the part of the agreement which dealt with fogging and snowstorm duties.

The railway companies in the present case imply that the omission from the "fogging and snowstorm" section of the agreement of a "continuous time" provision was deliberate and arose:—

(a) from a recognition of the fact

that fogging and snowstorm duties were an integral part of the work of men who would be called upon to discharge such duties, and

(b) from the fact that such men were under the agreement being granted a higher rate than was being granted to men engaged in emergency and special duty (other than fogging and snowstorm duties) and were to receive a refreshment allowance.

The union, while contending that the grant of the higher rate was due to the nature of the duties to be performed, give no explanation of the very pointed omission of a "continuous time" clause from the fogging and snowstorm section of the agreement, though that agreement was negotiated at the time when the parties must clearly have had in mind the terms of the National Wages Board Decisions.

The Chairman states he is driven to the conclusion that when providing for the higher rates and refreshment allowance one factor which the parties had in mind was that no "continuous time" provision similar to that which was being agreed to for those on emergency and special duty was being accorded to those on fogging and snowstorm duties and this conclusion is strengthened by the fact that between October, 1928, and December, 1934, no claim to be entitled to such a provision would appear to have been presented by the union, though opportunities to present such a case must presumably have arisen.

The Chairman states had he been satisfied upon the evidence that the omission of the "continuous time" clause from the fogging and snowstorm section of the agreement of October, 1928, was a pure oversight, he would have found for the union upon the present claim for it would then have been clear that there existed no connection between the omission of the clause and the grant of the higher rate and allowance. He is not so satisfied however. He cannot on the evidence before him attempt to equate the value of a "continuous time" clause if now granted to the higher rate of pay and refreshment allowance now existing under the agreement and to admit the present claim without being in a position to make such an equation might well prove inequitable to the men or to the companies.

Without prejudice therefore to the question of whether the higher rate and refreshment allowance was an adequate *quid pro quo* for the omission from the agreement of October, 1928, of a "continuous time" clause for those engaged in fogging and snowstorm duties, and in the light of the circumstances set out above, the Chairman found against the present claim.

**MADRAS RAILWAY ANNUITIES.**—A total sum of £5,492,372 is now invested for the purpose of providing a sinking fund in respect of Madras Railway Annuities Class "B."

## QUESTIONS IN PARLIAMENT

### London Public Service Vehicles

Mr. R. W. Sorensen (West Leyton—Lab.), on October 16, asked the Minister of Transport whether he had made any arrangement to engage Army lorries for passenger transport during periods of emergency in the London area.

Lt.-Colonel J. T. C. Moore-Brabazon: Sufficient ordinary public service vehicles are available and are providing all possible services and I do not consider that any need has arisen for the step suggested.

Mr. Sorensen: Will the Minister at least consider the idea if he finds any cases of shortage of public vehicles? Is he aware that in some cases thousands of travellers have had to wait for vehicles to carry them?

Lt.-Colonel Moore-Brabazon: I will certainly bear in mind what my hon. friend says, and I will get into touch with the Secretary of State for War, but my hon. friend will realise that this is a slippery slope.

Sir Herbert Williams (South Croydon—C.): Is the Minister aware of the very great difficulties that masses of people have in getting home in the evenings? In these circumstances will he not sanction the use of the very large number of motor coaches at present lying idle in London garages?

Lt.-Colonel Moore-Brabazon: I will certainly look into that straight away, but the general congestion of the roads has to be considered.

Sir H. Williams: Is not the congestion in the London streets far less than it was before the war?

Lt.-Colonel Moore-Brabazon: It depends where.

### Provisional Driving Licences

Mr. W. Green (Deptford—Lab.), on October 16, asked the Minister of Transport if he would consider the cancellation of the recent National Service driving licence, which was previously available on payment of 5s. for 12 months, as far as it affected those still using their cars for work of national importance.

Lt.-Colonel Moore-Brabazon wrote in reply: There is no need to reconsider the cancellation of the National Service driving licence, because a new Defence Regulation prolongs provisional driving licences issued on and after October 18 to twelve months. The fee is 5s. and no conditions are attached to the licence.

### Refreshment Facilities for Troops

Mr. A. Woodburn (Clackmannan and Eastern—Lab.), on October 23, asked the Minister of Transport whether he was aware of the difficulties experienced by soldiers on long-distance trains owing to non-existent or necessarily limited restaurant accommodation, and the unsuitability of the meals and their prices to the needs of travelling soldiers; and whether he was

prepared to arrange with the railways for the provision of substantial meal packages at cheap prices on such trains or at appropriate stations.

Lt.-Colonel Moore-Brabazon (Minister of Transport): The railway companies, when they received notice in advance from the responsible authority, already provide packed meals at reduced prices to parties of service men, and I am consulting the Departments concerned as to the possibility of extending this arrangement to provide for sailors, soldiers, and airmen travelling alone or in small parties. I will let my hon. friend know the result of my inquiries. Apart from this, as I informed my hon. friend the member for West Lewisham (Mr. Brooke) on October 8, canteens and refreshment rooms are available at stations to meet the needs of members of the Armed Forces.

Mr. Woodburn: Is the Minister aware that, on trains taking as long as 13 hours to reach their destination, individual soldiers gathered together may make up parties of as many as 60, 100, or 200 on one train and that it is extremely difficult for them to receive service at the canteen? If such packages could be provided, it would be a great convenience.

Lt.-Colonel Moore-Brabazon: I am considering that.

Mr. F. J. Bellenger (Bassetlaw—Lab.): Would the Minister consider having someone at the main termini to take a note of soldiers travelling individually and telegraph down the line, as people can do if they want to order refreshments *en route*?

Lt.-Colonel Moore-Brabazon: That is one of the possibilities that I was considering.

### Toll Gate Charges

Mr. R. De La Bere (Evesham—C.), on October 23, asked the Minister of Transport whether he could now give the results of the circular letter which was sent out by the Ministry of Transport to the toll-gate owners throughout the country in connection with the waiving of charges to the Home Guard and other members of His Majesty's forces.

Lt.-Colonel Moore-Brabazon: 92 cases are known, and enquiries have been completed in 84 cases. In 30 of these the tolls are statutory and members of H.M. Forces, including the Home Guard, on duty are exempted by the Army and Air Force Acts. The remaining 54 cases are private tolls, and in 50 of them the owners have agreed for the duration of the war to exempt members of H.M. Forces on duty, though in a few instances, the question of compensation has been raised. In 4 cases exemption has been refused. In one, the tolls are part of a trust estate and the trustees state that they have no power to grant exemption. In another, the owners state that exemption was granted, but was with-

drawn owing to damage committed. In another, the road is of little use, being unfit for traffic heavier than motor cycles. In the other, an arrangement has been made with the local Military Command to charge special rates for military traffic.

### Railway Fares

Mr. G. Ridley (Clay Cross—Lab.), on October 23, asked the Minister of Transport whether he could now announce the terms of the Report of the Charges (Railway Control) Consultative Committee on the matter of increased railway costs; and what steps he proposed to take.

Lt.-Colonel Moore-Brabazon: The report of the committee is being printed and copies will be available at the Vote Office within a few days. The committee's main recommendations are that no increase be made in the charges for season tickets, in workmen's fares, or in ordinary fares on the services of the London Passenger Transport Board except the coach services; and that other fares and charges be increased by approximately 6 per cent. The increase of 6 per cent., plus the 10 per cent. that came into force on May 1 represents an increase of approximately 16½ per cent. on pre-war charges. The Government has decided to accept these recommendations, and I shall make an Order accordingly.

Mr. Ridley: Does this mean that the £46,000,000 of increased costs is not now to be secured by the increased charges? Has the Minister under review any subsequent reports, or any further recommendation in contemplation, for further increases?

Lt.-Colonel Moore-Brabazon: Of the £46,000,000, the 10 per cent. charge looks after a certain amount, and this extra 6 per cent. clears it up. There is, of course, a lag because we did not introduce it earlier, but it should look after itself unless any untoward war damage comes along. The agreement is rather in the melting pot by virtue of the new arrangement which the Prime Minister adumbrated with regard to war damage. That was wrapped up in the agreement, and the question will therefore have to be reconsidered from rather a new angle.

Mr. L. Silkin (Peckham—Lab.): Will the Minister give the House an opportunity of discussing these proposals before he actually makes the Order?

Lt.-Colonel Moore-Brabazon: No, Sir, I am afraid the Government has decided on this increase. Of course, a general debate could take place upon the report.

### Alternative Services

Mr. R. W. Sorensen (Leyton West—Lab.), on October 23, asked the Minister of Transport whether, for the duration of the war, he would consider arranging that all fare tickets should be available at any time by any alternative method of travel in the London Transport Area; and whether he would arrange for cheap weekly

season tickets to be available for the same alternatives.

Lt.-Colonel J. T. C. Moore-Brabazon: To implement my predecessor's announcement of September 8 last, the railway companies and the London Passenger Transport Board have given instructions to their staff to allow passengers holding tickets available on services in the London area which are suspended or seriously impaired to travel by alternative road or rail services without extra payment. To avoid abuse, some discretion is allowed to the staff in the interpretation of these instructions. The effect of my hon. friend's suggestion might well be to encourage unnecessary travel and to divert traffic from the normal services, when available, to emergency services. Both these courses must be avoided, but I can assure my hon. friend that the matter is being closely watched.

Mr. Sorensen: Is the Minister aware that nowadays no one wants to travel unnecessarily, and, in these circumstances, does he not consider that this proposal would simplify the organisation and minimise the hardship caused to the travelling public?

Lt.-Colonel Moore-Brabazon: I appreciate that, but we must get the travelling public on to their normal method of travelling as much as we possibly can. The hon. member will appreciate that it takes 22 buses to equal one train, and 14 motorcars to equal one bus. Therefore, as much as possible, we must get the people back to the trains, and when they fail, then there is always the alternative.

#### Railway Staffs and Air Raids

Lieut.-Commander R. L. Tufnell (Cambridge—C.) asked the Minister of Transport what was the ruling with regard to railwaymen in different categories taking shelter during air raids.

Lt.-Colonel Moore-Brabazon, in a written reply, stated: The following instructions have been issued to railway staffs:

"During air raids it is essential that both passenger and freight services should continue to run as required. Trainmen and signalmen should remain

at their posts. All other staff should continue at work during air raids until danger is imminent in the immediate vicinity of the places at which they are working. The staffs should resume work as soon as the immediate danger is past."

Mr. D. L. Lipson (Cheltenham—Ind.) asked the Minister of Transport if he would arrange to provide steel helmets for the staffs of restaurant cars on trains?

Lt.-Colonel Moore-Brabazon wrote in reply: Railwaymen who are required to perform essential duties in the open during air raids are being equipped with steel helmets as rapidly as possible, but it is not possible at present to provide them for the staffs of restaurant cars.

#### Railway Services Information

Mr. T. E. Naylor (Southwark South-East—Lab.) asked the Minister of Transport if provision could be made for the more general distribution of information to passengers on the London railways by the use of megaphones or by increase of personnel when local dislocation necessitated a change of route or the closing of stations, with a view to avoiding the confusion and inconvenience now experienced by the travelling public, especially in the case of soldiers on leave.

Lt.-Colonel Moore-Brabazon, in a written reply, stated: The London Passenger Transport Board and the main-line railways are constantly examining the possibility of improving upon the arrangements already made to distribute information and, when practicable, measures such as those suggested by my hon. friend, including loud speakers, are being adopted. He will, however, be aware that the position changes so rapidly that it is often very difficult for the railways to keep up-to-the-minute information.

#### Traffic Returns

Sir Frank Sanderson (Ealing—C.) asked the Minister of Transport whether, in view of the fact that weekly traffics were no longer pub-

lished, he would consider traffics being published at monthly intervals, so that shareholders should not be entirely deprived of information.

Lt.-Colonel Moore-Brabazon wrote in reply: Figures are published half-yearly giving the approximate results of working the pool referred to in Command Paper 6168, but the prompt publication of figures of railway traffics at monthly intervals would not be in the national interest.

### British and Irish Railway Stocks and Shares

Stocks	Highest 1939	Lowest 1939	Oct. 29, 1940	Prices Rise/ Fall
G.W.R.				
Cons. Ord. ....	38	21½	33	—
5% Con. Pref. ....	92	71	76	+1
4% Red. Pref. (1950) ..	98	83	93½	—
4½% Deb. ....	103	91	102	—
4½% Deb. ....	105½	93½	103½	—
4½% Deb. ....	110	99	108½	—
5% Deb. ....	121	109½	112½	—
2½% Deb. ....	63½	54	62	—
5% Rt. Charge ....	117	104	111½	—
5% Cons. Guar. ....	111	96½	104½	—
L.M.S.R.				
Ord. ....	17	9½	13½	+½
4% Pref. (1923) ....	46½	20	36½	+1
4% Pref. ....	63½	37½	48½	+1
5% Red. Pref. (1955) ..	83	58½	73½	—
4% Deb. ....	98½	85	94	+2
5% Red. Deb. (1952) ..	109	101½	106	—
4% Guar. ....	87½	73	79	+2
L.N.E.R.				
5% Pref. Ord. ....	5½	3½	3	—½
Def. Ord. ....	3½	1½	1½	—
4% First Pref. ....	38½	19	32½	—
4% Second Pref. ....	15	7½	10½	+½
5% Red. Pref. (1955) ..	55	38	50	—
4% First Guar. ....	78½	60	69	+2
4% Second Guar. ....	68½	47	58	+1
3% Deb. ....	71½	57	64	+1
4% Deb. ....	93	76	83	—
5% Red. Deb. (1947) ..	106½	98	102	—
4½% Sinking Fund Red. Deb. ....	104½	96	100½	+1
SOUTHERN				
Pref. Ord. ....	78	46½	43½	+2
Def. Ord. ....	19½	7	10½	+½
5% Pref. ....	100	76	74½	+1
5% Red. Pref. (1964) ..	102½	94	87½	—
5% Guar. Pref. ....	116½	103	105½	—
5% Red. Guar. Pref. (1957) ..	112½	102½	102½	—
4% Deb. ....	103	91½	95	+1
5% Deb. ....	118½	109½	110½	—
4% Red. Deb. (1962-67) ..	106	98	101½	—
4% Red. Deb. (1970-80) ..	102	96	100½	—
FORTH BRIDGE				
4% Deb. ....	98½	81	87½	—
4% Guar. ....	95	80	85½	—
L.P.T.B.				
5% "A" ....	115	103	106	—
5% "A" ....	123	106½	113	—
4% "T.F.A." ....	105	100½	103	—
5% "B" ....	117½	102	104½	—
"C" ....	84	63½	27	—
MERSEY				
Ord. ....	24½	17½	20½	—
4% Perp. Deb. ....	93½	88½	89	—
3% Perp. Deb. ....	77	65½	59½	—
3% Perp. Pref. ....	55	49½	54½	—
IRELAND				
BELFAST & C.D.				
Ord. ....	6	3	4	—
G. NORTHERN				
Ord. ....	6	2½	3	—
G. SOUTHERN				
Ord. ....	13½	8	5	—
Pref. ....	26	10	16	—2
Guar. ....	40½	22	18½	—
Deb. ....	57	45½	44½	+2½

### Irish Traffic Returns

IRELAND		Totals for 42nd Week				Totals to Date			
		1940	1939	Inc. or Dec.	1940	1939	Inc. or Dec.		
Belfast & C.D. (80 miles)	pass.	£ 3,066	£ 2,254	+	£ 812	£ 140,088	£ 112,585	+	£ 27,503
	goods	642	616	+	26	25,330	19,592	+	5,738
	total	3,708	2,870	+	838	165,418	132,177	+	33,241
Great Northern (543 miles)	pass.	11,750	9,700	+	2,050	522,700	486,100	+	36,600
	goods	16,350	12,850	+	3,500	547,350	453,450	+	93,900
	total	28,100	22,550	+	5,550	1,070,050	939,550	+	130,500
Great Southern (2,076 miles)	pass.	30,807	31,743	—	936	1,515,714	1,594,558	—	78,844
	goods	61,894	64,012	—	2,118	1,958,167	1,823,421	+	134,746
	total	92,701	95,755	—	3,054	3,473,881	3,417,979	+	55,902
L.M.S.R. (N.C.C.) (247 miles)	pass.	5,050	4,050	+	1,000	242,810	201,140	+	41,670
	goods	6,390	3,870	+	2,520	169,600	126,870	+	42,730
	total	11,440	7,920	+	3,520	412,410	328,010	+	84,400

## OFFICIAL NOTICES

## Rio Tinto Company Limited

NOTICE IS HEREBY GIVEN that the Share Transfer Books of the Company will be closed from Thursday, the 31st October, to Thursday, the 14th November, both days inclusive, for the preparation of the Half-yearly Dividend on the Preference Shares, which will be paid on the 15th November.

Holders of Share Warrants to Bearer are informed that they will receive payment of the said Half-yearly Dividend on the Preference Shares at the rate of Two Shillings and Sixpence per Share, less Income Tax, on and after Friday, the 15th November, 1940, on presentation of Preference Share Coupon No. 87, at the Company's Office in London.

Coupons for payment in London must be left four clear days previously for examination, and may be deposited forthwith.

By Order,

J. DAVIDSON,

Secretary.

Offices of the Company:

11, Old Jewry, London, E.C.2.  
25th October, 1940.

NOTICE IS HEREBY GIVEN that the next ORDINARY GENERAL MEETING of the South Indian Railway Company, Limited, will be held at the temporary Offices of the Company, 42, Fairacres, Rochester Lane, S.W.15, on Wednesday, the 13th November, 1940, at 12 noon, for the purpose of receiving the Directors' Report and Statements of Accounts for the year ending 31st March, 1940, and for the transaction of the ordinary general business of the Company.

The Transfer Books will be closed from Tuesday, the 17th, to Tuesday the 31st, day of December, 1940, both days inclusive, for the preparation of the half-yearly Warrants.

Transfers will not be received at the Office while the Books remain closed.

The Warrants payable on and after the 1st January, 1941, will be forwarded to the Proprietors on the 30th December, 1940.

By order,

E. A. S. BELL,

Managing Director.

Company's Temporary Offices:

42, Fairacres, Rochester Lane, S.W.15.  
16th October, 1940.

## Universal Directory of Railway Officials and Railway Year Book

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## OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Wednesday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W. 1.

## Notes and News

**Institute of Transport Luncheon Cancelled.**—The Institute of Transport announces that the luncheon which was to have been held on November 4 at the Connaught Rooms, London, has had to be cancelled.

**Road Vehicle Registrations.**—Mechanically-propelled road vehicles in Great Britain registered for the first time during August totalled 6,135, compared with 29,831 in August, 1939. Ministry of Transport statistics show that private cars declined from 16,272 to 234 and general goods vehicles from 4,828 to 394.

**Renovation of Waterloo & City Tube, S.R.**—After having been closed over the week-end, from the afternoon of Friday, October 25, the new signalling, rolling stock, and other improvements, were brought into operation on the Waterloo & City tube line of the Southern Railway on Monday, October 28. We hope to publish a full description of the line in our issue of November 15.

**Canadian Pacific Earnings.**—Gross earnings of the Canadian Pacific Railway for September, 1940, amounted to \$15,647,000, a decrease of \$3,677,000 in comparison with September, 1939, leaving net earnings \$2,836,000 lower, at \$2,986,000. For the first nine months of 1940, aggregate gross earnings were \$121,848,000, an increase of \$16,404,000 in comparison with the first nine months of 1939, and the net earnings of \$20,290,000 showed an advance of \$7,585,000.

**Pennsylvania Railroad Scholarships.**—Awards of two college scholarships, known as the Frank Thomson Scholarships, to sons of Pennsylvania Railroad employees, have been made recently. The Frank Thomson scholarships, valued at \$800 annually for four-year courses, were established in 1907 by the heirs of the late Frank Thomson, in memory of their father, who was president of the Pennsylvania Railroad from 1897 to 1899, to give sons of living or deceased employees of the company an opportunity to secure technical

educations. Since the founding of scholarships, 61 young men have been educated under the provisions of the endowment and six others are still in college, in addition to the two just awarded.

**New Zealand Railway Accident.**—A Wellington-Auckland express was derailed on Monday, October 28, at Mercer, 40 miles south of Auckland. It is reported that the driver and fireman were killed and ten others injured.

**Grassmoor Station Closed.**—The L.N.E.R. has announced the closing of Grassmoor station from Sunday, October 27. Parcels traffic and small consignments of goods traffic to and from Grassmoor are being dealt with at Heaton or Chesterfield Central stations. Railway collection and delivery services continue to operate in the Grassmoor district.

**Road Deaths in September.**—The Ministry of Transport statistics of the numbers of persons reported to have died in Great Britain during the month of September, 1940, as a result of road accidents show that the total was 909, compared with 729 in the previous month and with 1,133 in September, 1939. Adult pedestrian fatalities were 385, compared with 552 in September of last year, and the number of motor cyclists killed was 177, against 182. Of the total fatalities, 385 were the result of accidents during hours of darkness, and 524 during other hours.

**Canadian National Earnings.**—Gross earnings of the Canadian National Railways in September, 1940, were \$21,119,220, a decrease of \$1,526,083 in comparison with September, 1939. Operating expenses amounted to \$17,191,753, with an increase of \$851,092, resulting in net earnings of \$3,927,467, which were \$2,377,175 lower than those of September, 1939. Aggregate gross earnings for the first nine months of 1940 totalled \$178,415,991, an increase of \$36,170,054 in comparison with the first nine months of 1939, and the net earnings of \$27,968,316 show an improvement of \$21,315,962.

## Contracts and Tenders

The National Railways of Colombia have ordered 22 diesel railcars and 13 special lightweight trailers from the American Car & Foundry Company.

The Canadian Car & Foundry Co. Ltd., has received through British and Canadian purchasing boards an initial order for 1,500 aeroplane propeller hubs and approximately 1,000 propeller shafts in connection with the Anson training bomber programme being carried out by the Boeing-Aircraft Company. The estimated value of the order is about \$2,500,000. One of the Montreal units of the company is being reconditioned with the object of not only supplying the aircraft divisions with machine tools but of occupying a key position in the aircraft industry.

The South African Railways & Harbours Administration is calling for tenders, to be presented in South Africa by November 25, for the supply of carriage fittings (angles, sash balances, locking bars, wash basins, bolts, catches, automatic door controllers, handles, hinges, locks, and so forth). A copy of the schedule and conditions of tenders and drawings are available for loan to interested United Kingdom manufacturers on application to the Department of Overseas Trade, Great George Street, London, S.W.1.

The Dublin Corporation is inviting tenders for the construction in reinforced concrete of a bridge across the Great Northern Railway at Killester. Intending tenderers may inspect drawings, specification, conditions of contract, etc., at the office of the City Engineer, 28, Castle Street, Dublin. Copies of plans, specification, bills of quantities and conditions of contract may be obtained from the City Treasurer, Exchange Buildings, Lord Edward Street, Dublin, on payment of two guineas, which will be refunded on receipt of a *bona fide* tender and the return of the documents. Tenders directed to the City Manager & Town Clerk, Finance and General Purposes Section, City Hall, Dublin, and endorsed "Tender for Construction of Killester Bridge," must be lodged not later than 12 noon on November 15.

## Railway Stock Market

The outbreak of war between Greece and Italy produced an irregular tendency in the stock and share markets, and security values fluctuated within narrow limits. Further contraction in the volume of business was reported, but when it was apparent that no heavy selling was likely to develop, conditions became firmer. High-grade investment stocks remained tightly held, and sentiment in regard to British funds tended to benefit from the belief that they will attract a large part of the proceeds of requisitioned Canadian securities. Home railway stocks failed to keep all last week's gains, but this was attributed to the surrounding trend on the Stock Exchange. In fact, very little selling was in evidence, although following their recent rally, there was some profit-taking in various of the preference stocks. At the time of writing, debentures and other prior charges have held last week's gains and in some instances are higher on balance; it is realised that current yields are attractive, and that the good margin over interest requirements should be maintained. Southern and L.M.S.R. 4 per cent. debentures still yield approximately  $4\frac{1}{2}$  per cent., and the yield on L.N.E.R. 3 per cent. debentures, which, however, are not so well covered as to interest, is not far short of  $4\frac{1}{2}$  per

cent. Although it has been stated officially that, owing to the new plans for air-raid damage compensation, the agreement between the Government and the railway companies must be considered to be in the melting-pot, the market is continuing to take the view that the existing proportions of minimum net revenues are unlikely to be changed materially by the terms of any new or revised agreement next year. Nevertheless, until the position is clarified it seems that junior stocks of the main-line railways must be expected to continue to be valued on a high-yield basis.

In accordance with the general tendency, Great Western ordinary has not held best prices touched in the past few days, but at 33 was only fractionally lower on balance. The guaranteed stock at 105, and the 5 per cent. preference stock at 76, each showed an improvement of half-a-point, while Great Western 4 per cent. debentures made the higher price of 103 "middle." Following last week's rise, L.M.S.R. preference stocks were subject to profit-taking sales, but the senior preference at 49 was a point higher on balance, and the 1923 preference was unchanged at 35 $\frac{1}{2}$ . An improvement from 77 to 78 $\frac{1}{2}$  was shown in the guaranteed stock, but the yield still exceeds 5 per cent., and the dividend requirements were covered with a substantial margin in

1939. L.M.S.R. 4 per cent. debentures moved up from 93 to 94 $\frac{1}{2}$ , and the ordinary stock was well maintained at 131.

L.N.E.R. issues became easier in accordance with the surrounding market trend, but in most cases quotations were higher on balance. The first guaranteed was 68 $\frac{1}{2}$ , compared with 67 $\frac{1}{2}$  a week ago, and the second guaranteed at 58 $\frac{1}{2}$  was also a point better. On the other hand, the first preference reacted moderately to 32 $\frac{1}{2}$ , although the second preference at 10 was unchanged on the week. Southern preferred became easier, but at 43 the price was a point higher on balance, and the deferred stock improved slightly to 10 $\frac{1}{2}$ . As compared with a week ago, Southern 5 per cent. preference showed a gain from 73 $\frac{1}{2}$  to 74 $\frac{1}{2}$ , but the guaranteed stock remained at 105 $\frac{1}{2}$ . On the other hand, Southern 4 per cent. debentures were bought and further improved to 95 $\frac{1}{2}$ . London Transport "C" stock was 27 $\frac{1}{2}$ .

Movements in Argentine railway stocks were reactionary, awaiting publication of the annual results. Central Argentine issues, which remained under the influence of the moratorium proposals, were again lower, and both the 4 per cent. and 5 per cent. debentures have been marked down to 24. Elsewhere, San Paulo ordinary remained at 30. Canadian Pacific preference at 41 $\frac{1}{2}$  regained an earlier decline, and the debentures were firm.

### Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1939-40	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffic to Date			Shares or Stock	Prices			
				Total this year	Inc. or Dec. compared with 1939		Totals		Increase or Decrease		Highest 1939	Lowest 1939	Oct. 29, 1940	Yield % (See Note)
							This Year	Last Year						
South & Central America	Antofagasta (Chili) & Bolivia	834	20.10.40	£ 17,230	+ £ 2,700	42	£ 717,400	£ 560,900	+ £ 156,500	Ord. Stk.	10 $\frac{1}{2}$	4 $\frac{1}{2}$	5	Nil
	Argentine North Eastern	753	19.10.40	ps. 177,500	+ ps. 18,300	16	ps. 2,795,900	ps. 2,864,500	- ps. 68,600	"	4 $\frac{1}{2}$	2	2	Nil
	Bolivar	174	Sept. 1940	3,790	- 510	39	35,970	38,350	- 2,380	6 p.c. Deb.	7 $\frac{1}{2}$	5 $\frac{1}{2}$	6 $\frac{1}{2}$	Nil
	Brazil									Bonds.	5 $\frac{1}{2}$	4 $\frac{1}{2}$	6 $\frac{1}{2}$	Nil
	Buenos Ayres & Pacific	2,801	12.10.40	ps. 1,160,000	- ps. 8,000	15	ps. 16,809,000	ps. 18,473,000	- ps. 1,664,000	Ord. Stk.	5 $\frac{1}{2}$	2	2	Nil
	Buenos Aires Central	190	10.8.40	899,500	- 831,600	6	857,500	867,500	- 10,000	"	13 $\frac{1}{2}$	4 $\frac{1}{2}$	5	Nil
	Buenos Ayres Gt. Southern	5,082	19.10.40	ps. 1,867,000	- ps. 264,000	16	ps. 29,694,000	ps. 30,728,000	- ps. 1,034,000	Ord. Stk.	10 $\frac{1}{2}$	4	4	Nil
	Buenos Ayres Western	1,930	19.10.40	ps. 676,000	- ps. 6,000	16	ps. 9,993,000	ps. 11,113,000	- ps. 1,120,000	"	11 $\frac{1}{2}$	4	3	Nil
	Central Argentine	3,700	19.10.40	ps. 1,339,650	- ps. 206,100	16	ps. 22,361,850	ps. 31,407,350	- ps. 9,045,500	"	11 $\frac{1}{2}$	4	3	Nil
	Do.									Div.	4	1 $\frac{1}{2}$	2	Nil
	Cent. Uruguay of M. Video	972	19.10.40	22,065	+ 5,444	16	290,634	269,979	+ 20,655	Ord. Stk.	2 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	Nil
	Costa Rica	188	May 1940	17,282	- 7,020	48	193,339	245,516	- 52,177	"	24 $\frac{1}{2}$	18	17 $\frac{1}{2}$	11 $\frac{1}{2}$
	Dorada	70	Sept. 1940	12,200	- 2,200	39	110,700	123,700	- 13,000	1 Mt. Db.	104 $\frac{1}{2}$	102	98	6 $\frac{1}{2}$
	Entre Rios	810	19.10.40	ps. 227,900	- ps. 5,800	16	ps. 3,810,800	ps. 4,297,700	- ps. 486,900	Ord. Stk.	6	3	1 $\frac{1}{2}$	Nil
	Great Western of Brazil	1,016	19.10.40	13,900	+ 2,000	42	415,400	345,500	+ 69,900	Ord. Sh.	3/-	1/2d	1 $\frac{1}{2}$	Nil
	International of Cl. Amer.	794	Aug. 1940	\$354,854	+ \$70,916	35	\$4,079,630	\$4,123,397	- \$43,767	Int. Pref.	7 $\frac{1}{2}$ d.	7 $\frac{1}{2}$ d.	1 $\frac{1}{2}$	Nil
	Interoceanic of Mexico									"	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	Nil
	La Guaira & Caracas	22 $\frac{1}{2}$	Sept. 1940	8,240	+ 2,485	39	60,300	55,105	+ 5,195	Ord. Stk.	2 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	Nil
	Leopoldina	1,918	19.10.40	27,288	+ 3,141	42	961,659	868,452	+ 93,207	"	2 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	Nil
	Mexican	483	14.9.40	ps. 268,200	- ps. 21,600	11	ps. 2,874,500	ps. 3,026,400	- ps. 151,900	"	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	Nil
	Midland of Uruguay	319	Sept. 1940	11,468	+ 2,820	13	32,831	26,138	+ 6,693	"	2	1 $\frac{1}{2}$	1 $\frac{1}{2}$	Nil
	Nitrate	386	15.10.40	5,599	- 863	41	140,684	93,744	+ 46,940	Ord. Sh.	2 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	7 $\frac{1}{2}$
	Paraguay Central	274	19.10.40	\$3,180,000	+ \$336,000	16	\$56,619,000	\$53,454,000	+ \$3,165,000	Pr. Lt. Stk.	45 $\frac{1}{2}$	36	38	15 $\frac{1}{2}$
	Peruvian Corporation	1,059	Sept. 1940	63,848	+ 2,527	13	198,447	192,214	+ 6,233	Pref.	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	Nil
	Salvador	100	7.9.40	7,506	- 1,384	10	93,182	102,488	- 9,306	"	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	Nil
	San Paulo	153 $\frac{1}{2}$	23.9.40	30,000	+ 4,387	39	1,426,392	1,262,893	+ 163,499	Ord. Stk.	38	20	30 $\frac{1}{2}$	8 $\frac{1}{2}$
	Talita	160	Aug. 1940	2,465	+ 335	9	4,550	3,685	+ 865	Ord. Sh.	1 $\frac{1}{2}$	6/6	1 $\frac{1}{2}$	9 $\frac{1}{2}$
	United of Havana	1,353	19.10.40	15,212	+ 3,851	16	248,338	289,691	- 41,353	Ord. Stk.	2	1 $\frac{1}{2}$	1 $\frac{1}{2}$	Nil
	Uruguay Northern	73	Sept. 1940	970	- 63	13	2,870	2,683	+ 187	"	—	—	—	Nil
Canada	Canadian National	23,695	21.10.40	1,040,396	+ 1,905	42	38,695,530	31,467,404	+ 7,228,126	"	—	—	—	—
	Canadian Northern								4 p.c.	Perp. Dbs.	74 $\frac{1}{2}$	60	74	5 $\frac{1}{2}$
	Grand Trunk								Ord. Stk.	100 $\frac{1}{2}$	76	102	3 $\frac{1}{2}$	
	Canadian Pacific	17,153	21.10.40	782,600	+ 66,000	42	26,551,000	23,418,200	+ 3,132,800	Ord. Stk.	7 $\frac{1}{2}$	3 $\frac{1}{2}$	5 $\frac{1}{2}$	Nil
India	Assam Bengal	1,329	30.4.40	45,187	+ 6,529	4	135,060	120,437	+ 14,623	Ord. Stk.	76 $\frac{1}{2}$	60	77 $\frac{1}{2}$	3 $\frac{1}{2}$
	Barsi Light	202	10.9.40	2,160	- 345	23	66,780	53,557	+ 13,223	"	—	—	—	—
	Bengal & North Western	2,091	Sept. 1940	223,650	+ 46,363	26	1,485,502	1,253,721	+ 231,790	Ord. Stk.	277	229 $\frac{1}{2}$	240	6 $\frac{1}{2}$
	Bengal Doars & Extension	161	Sept. 1940	14,625	+ 1,625	16	78,405	66,243	+ 12,162	"	91	84 $\frac{1}{2}$	212 $\frac{1}{2}$	3 $\frac{1}{2}$
	Bengal-Nagpur	3,269	10.8.40	204,075	+ 16,707	19	3,079,954	2,834,428	+ 245,526	"	94 $\frac{1}{2}$	83 $\frac{1}{2}$	92 $\frac{1}{2}$	4 $\frac{1}{2}$
	Bombay, Baroda & Cl. India	2,986	20.10.40	246,075	+ 23,400	28	5,274,150	4,686,675	+ 587,475	"	108	90	104 $\frac{1}{2}$	5 $\frac{1}{2}$
	Madras & Southern Mahratta	2,967	31.8.40	160,350	+ 5,016	22	2,522,079	2,484,222	+ 37,857	"	104 $\frac{1}{2}$	92	99 $\frac{1}{2}$	7 $\frac{1}{2}$
	Rohilkund & Kumaon	571	Sept. 1940	38,925	+ 4,219	26	323,231	259,075	+ 64,156	"	280	263	250	6 $\frac{1}{2}$
	South Indian	2,542	20.8.40	111,501	+ 11,077	20	1,744,085	1,617,362	+ 126,723	"	102 $\frac{1}{2}$	88	84 $\frac{1}{2}$	5 $\frac{1}{2}$
Various	Beira	204	Aug. 1940	85,336	—	48	832,782	—	—	Prf. Sh.	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	Nil
	Egyptian Delta	623	31.7.40	5,048	- 914	18	56,624	61,673	- 5,049	"	—	—	—	—
	Kenya & Uganda	1,625	—	—	—	—	—	—	—	B. Deb.	55	39	47 $\frac{1}{2}$	7 $\frac{1}{2}$
	Manila			—	—	—	—	—	—	Inc. Deb.	91 $\frac{1}{2}$	87 $\frac{1}{2}$	82 $\frac{1}{2}$	4 $\frac{1}{2}$
	Midland of W. Australia	277	July 1940	11,397	+ 139	4	11,397	11,258	+ 139	"	—	—	—	—
	Nigerian	1,900	31.8.40	27,727	+ 3,258	22	783,893	601,488	+ 182,405	"	—	—	—	—
	Rhodesia	2,442	Aug. 1940	512,446	—	48	4,428,678	—	—	"	—	—	—	—
South Africa	13,287	21.9.40	704,505	+ 7,989	25	16,865,140	16,126,961	+ 738,179	"	—	—	—	—	
Victoria	4,774	June 1940	797,185	+ 103,739	52	9,942,449	9,350,329	+ 592,120	"	—	—	—	—	

Note. Yields are based on the approximate current prices and are within a fraction of  $\frac{1}{2}$  per cent. Argentine traffic is now given in pesos.  
 \* Quotation is of June 17, 1940; dealings subsequently prohibited. † Receipts are calculated @ 1s. 6d. to the rupee